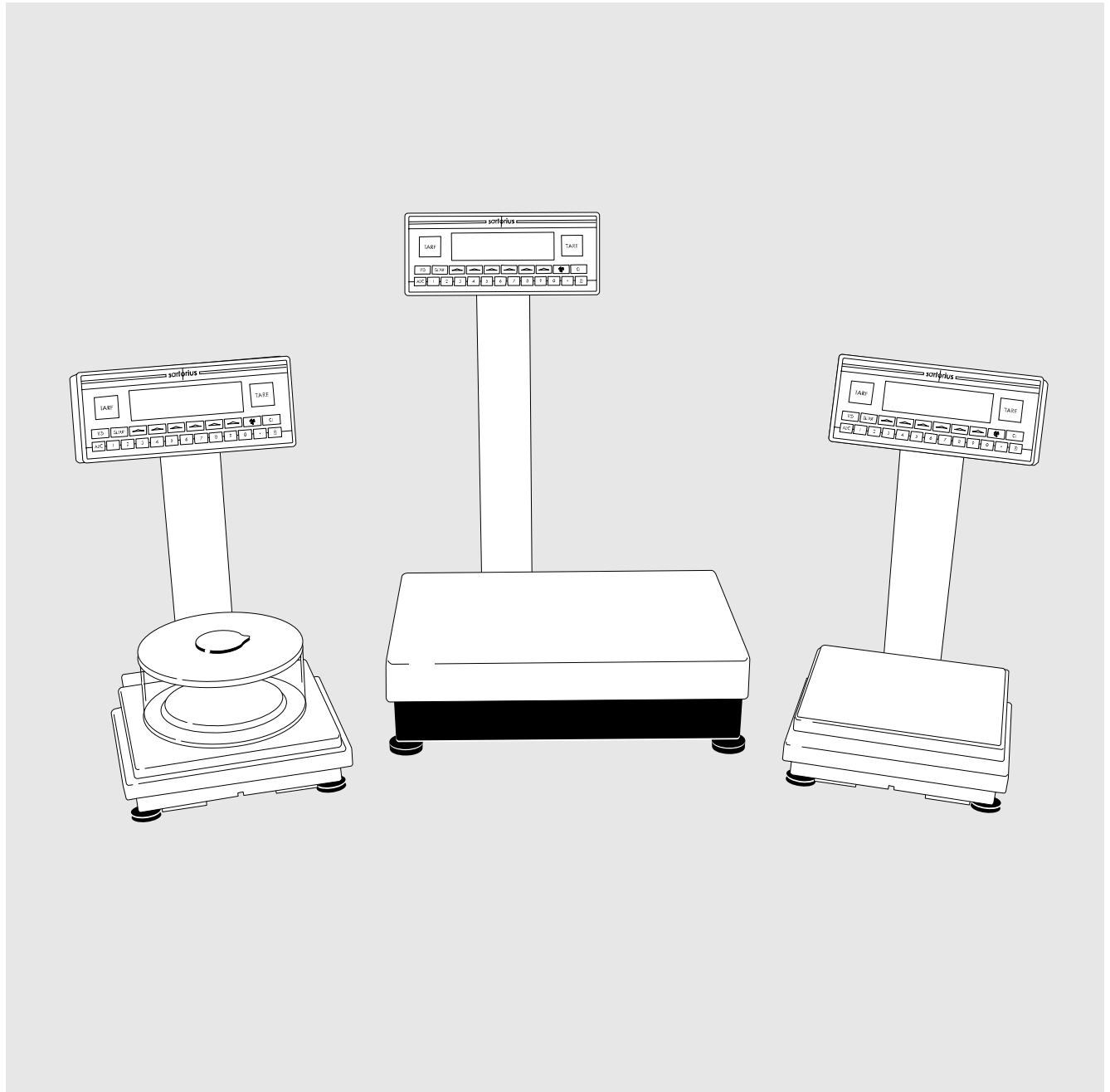


Sartorius Factory Series

Industrial
Weighing Technology

FC Models
Electronic Precision Scales
Operating Instructions



sartorius

Practical Use

The Factory Series from Sartorius offers precision scales with capacities ranging from 1 to 34 kg.

A broad range of special performance features make the Factory scales ideal for use as measuring and test equipment in ISO or GMP quality management systems. These features include:

- Self-calibrating and adjustment function, isoTEST
- reproTEST for quick determination of the standard deviation to check the reproducibility of results
- ISO/GMP-compliant recording capability for printouts
- Password-protected menu lock

Factory scales meet the highest requirements on the accuracy and reliability of weighing results through the following features:

- Efficient filtering-out of interference from ambient conditions, e.g. vibrations, drafts, etc.
- Stable and reproducible results
- Excellent readability under any lighting conditions
- Rugged, durable weighing system

Factory scales save work and speed up simple routine applications through:

- Ultrafast response times
- Built-in application programs, including

Application 1:

- Toggling between two weight units
- Counting
- Weighing in percent
- Animal weighing
- Calculation

Application 2:

- Checkweighing
- Time-controlled functions

Application 3:

- Totalizing
- Formulation
- Statistics

with the following additional functions:

- Second tare memory
- Identifier
- Manual data storage in Application 3
- Automatic initialization when you switch on the scale
- Easy input of alphanumeric sample, lot and scale IDs
- Flexible, easy-to-use display and control unit
- Connectivity for control through an on-line computer

For advice on the use of these applications, just call or fax:

Telephone: (0) 551 308-500

Telefax: (0) 551 308-595

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Appendix

Entering the User Password

Safety Precautions

This scale has been constructed in accordance with the European Directives as well as international regulations and standards for operation of electrical equipment, electromagnetic compatibility, and stipulated safety requirements. Improper use or handling, however, can result in damage and/or injury.

Read these operating instructions thoroughly before using your scale to prevent damage to the equipment. Keep these instructions in a safe place.

Follow the instructions below to ensure safe and trouble-free operation of your scale:

- ⚠ Do not use this scale in a hazardous area/location
- ⚠ Make sure that the voltage rating printed on the AC adapter is identical to your local line voltage
- The only way to switch the power off completely is to disconnect the AC adapter
- The scale housing is protected as listed below against dust deposits and water splashes – the housing is not completely dust-tight, however.
- FC...EDE models:
IP 65 protection
- Scales with a capacity ≤ 12 kg:
IP 54 protection
- Protect the AC adapter from contact with liquid.
- Connect only Sartorius accessories and options, as these are optimally designed for use with your Factory scale.

Do not open the scale housing. If the seal is broken, this will result in forfeiture of all claims under the manufacturer's warranty.

In case you have any problems with your scale:

- contact your local Sartorius office, dealer or service center

Operating Design

The scales in the Factory Series consist of a weighing cell and a display and control unit. In addition to the choice of power supply (via AC adapter or external rechargeable battery pack), your scale also has an interface port for connecting a printer, computer or universal remote control switch.

The display and control unit and the weighing cell can be set up separately. Operation of Factory scales follows a uniform "philosophy" which is described in this manual.

Where not expressly indicated otherwise, the uses described in this manual apply to verified and verifiable scale versions (indicated by the suffix "-OCE" in the model number), as well as the standard version.

Combining Applications

You can combine the use of various application programs to meet your more complicated requirements.

Press the /[TOGGLE] key to select the desired application programs.

Keys

Your Factory scale is operated either through the keys on the display and control unit or via a connected PC. Operation through the scale keys is described in the following.

Function Keys (Soft Keys)

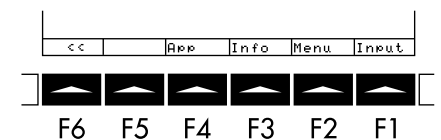
The current function of a soft key is indicated in the bottom line of the display. (In the example shown below, <<: Exit the setup menu

App: Application menu

Info: Scale data

Menu: Scale operating menu

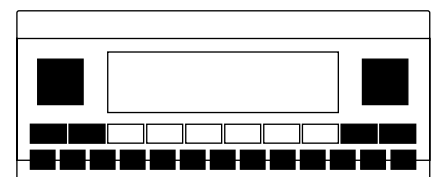
Input: User data input)



The function keys are numbered F1 through F6, from right to left.

Labeled Keys

These keys always have the function indicated, but are not available at all times. Availability of these functions depends on the current operating status and menu settings.



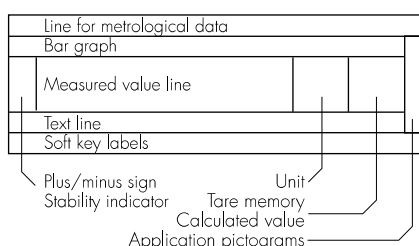
Display

There are two fundamentally different types of display:

- display of measured and calculated values
- display for menu parameter settings (setup)

Display of Measured and Calculated Values

This display is divided into nine sections.



Line for Metrological Data:

When used in legal metrology, the following metrological specifications are shown here:

- Max** Maximum capacity of the scale
- Min** Minimum capacity of the scale; i.e., the minimum weight allowed when the scale is used in legal metrology
- e** Verification scale interval of the scale
- d** Readability: indicates the scale interval of the scale

On standard scales, only **Max** and **d** are shown.

Bar Graph:

The bar graph indicates how much of the scale's capacity is "used up" by the current load; during checkweighing, it indicates the control limits.

The following symbols may be displayed here:

- 0%** Lower load limit
- 100%** Upper load limit
- |||||** Bar graph showing 10% intervals
- Minimum for checkweighing
- =** Target for checkweighing
- +** Maximum for checkweighing

Plus/Minus Sign, Stability Symbol:

A plus or minus sign (**+** or **-**) is shown here for a weight value (e.g., a calculated value when weighing in percent) or the **⊖** symbol, indicating that the verified or verifiable scale has been zeroed or tared.

Measured Value Line:

This section shows the weighed or calculated value or alphanumeric input.

Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

For verified scales that have a verification scale interval **e** which is greater than the scale interval **d**, the last digit on the display is bordered.

Unit and Stability:

When the scale reaches stability, the weight unit or calculation unit is displayed here.

When the **⚠** symbol is displayed here, the value indicated in the readout cannot be used in legal metrology.

Tare Memory, Calculated Values:

The symbols displayed here indicate when there is a value in one of the tare memory modules or when the value shown is a result of calculation rather than direct measurement.

These symbols are as follows:

- ⚠** Calculated value
- N1 N2** Tare memory used by an application program (e.g., formulation, second tare)

Application Pictograms:

The pictograms displayed here indicate the application(s) selected. The pictogram is displayed inversely when the corresponding application is active.

For example, the following symbols may be displayed simultaneously:

- ⚙** The counting application is active
- ⚖** Checkweighing is also active
- 🖨** Print
- 📄** Data record

Text Line:

Additional information is displayed here (e.g., operator guidance prompts, name of the active program, etc.).

Soft Key Labels:

The current functions of the soft keys are indicated here; during calibration/adjustment, this line shows up- and down-arrows (**⬆** and **⬇**) for selecting calibration and adjustment functions.

* including the Signatories of the Agreement on the European Economic Area

Display for Menu Parameter Settings (Setup)

This display is divided into three sections.

Header
Input and Output Window
Footer
Footer

Header

The header indicates the function of the current screen page. In the Setup program, the current menu path is shown here.

Example in the Path "Setup/Menu":

SETUP	MENU	[]

Input and Output Window

This window contains either detailed information (e.g., on the active application) or a pick list. A selected item is displayed inversely. You can also enter information in an active field in this window using the alphanumeric keys.

Example in the Path "Setup/Menu":

1	Minimum vibration
o 2	Normal vibration
3	Strong vibration
4	Extreme vibration

The o symbol in this window indicates the current menu setting.

Footer

The bottom line shows symbols and/or abbreviations to indicate soft key functions. The abbreviations are usually self-explanatory.

<<	<	^	v	↓	

The arrows shown in this line indicate the following functions:

- << Return to Setup menu (in the Setup menu: save settings and exit the Setup program)
- < Go back to the higher selection level
- > Show sub-items under the active item
- ^ Move upward in the input/output window
- v Move downward in the input/output window
- ↓ Set the selected menu parameter

Input

Numeric Input

To enter numbers: Press the [1] [2] ... [0] [.] keys

To store numbers entered: Press the corresponding soft key (i.e., the arrow key under the appropriate abbreviation in the bottom line of the display)

To interrupt/cancel numeric input: Press [CF]

Alphabetic Input

(see also the example given on page 34)

- To enter letters or characters: first press the [ABC] key
- > Letters are displayed in the bottom line
- To select a different letter: press the corresponding soft key to change the letter shown (i.e., the arrow key under the letter displayed)
- To select the letter/character shown: press the corresponding soft key
- > The selected letter is shown in the display
- Enter the next letter/character, if desired, as above.
- To store a word: press the corresponding soft key (e.g., [S ID])
- To delete a word: press [CF]

Parameter Settings

The parameters for configuration are in the application menu and the scale operating menu. These menus have several levels.

- To set parameters: press [SETUP] and then the appropriate soft key (e.g., [APP] for the application menu)
- To move within a menu level: use the ^ and v soft keys

To select a parameter:

- Press **▲** or **▼** repeatedly until the desired setting is selected (displayed inversely)
- Confirm your selection by pressing the **↵** soft key

To change the numeric value of a parameter:

- Press **▲** or **▼** repeatedly until the desired setting is selected (displayed inversely)
- Enter the desired number using the **1** **2** ... **0** **.** keys
- Confirm your selection by pressing the **↵** soft key

To return to the Setup/Select level:

- Press the **◀◀** soft key

See the chapter entitled "Configuring the Scale" for a complete description of all parameters.

To save the parameter settings and exit the Setup menu: press **SETUP** or the **◀◀** soft key

To cancel the parameter setting operation: press **1/0**/[ON/OFF]

Data Output

Your Factory scale is equipped with an interface port for connecting your choice of the following:

- Printer
- Peripheral device (e.g., computer)
- Universal remote control switch

Printer

You can configure the print functions to meet your individual requirements by selecting the corresponding menu code.

You can have printouts generated automatically, or by pressing **☺**/[PRINT]; dependent on or independent of the stability or time parameters; with or without IDs; and as standard or ISO/GMP-compliant printouts.

ISO: International Organization for Standardization

GMP: Good Manufacturing Practice

See the section on "Data Output Functions" in the chapter entitled "Operating the Scale" for a detailed description of data output options.

Interface Port

Instead of a printer, you may choose to connect a different peripheral device, e.g. a computer (PC). With an on-line PC you can control both the weighing cell and the display unit of the Factory scale.

Request messages are sent via the interface to initiate functions in the weighing cell and in the display unit. Some of the functions generate response messages.

See the chapter entitled "Operating the Scale" under the section on "Data Output" for a detailed description of the interface port.

Error Codes

If you press a key that has no function, or which is blocked at a certain point in an application program, this error is indicated as follows:

- a double-beep is sounded as an acoustic signal if the key has no function
- a double-beep is sounded and a message is displayed for 2 seconds in the text line if the key function is not available at that time

The response to an operator error is identical in all models of the Factory series. See the chapter entitled "Error Codes" for a detailed description.

Storing Settings

Storing Parameter Settings

The settings configured are stored in the scale's non-volatile memory. The most recent parameter settings are active when you switch on the scale.

Saving Parameter Settings

You can assign passwords in order to block access to:

- the application menu **App**
- the balance operating menu **Menu** and
- user data input functions **Input**

Getting Started

Storage and Shipping Conditions

Allowable storage temperature:
+5 °C ...+40 °C
+41 °F ...+104 °F

The packaging has been designed to ensure that the scale will not be damaged even if it is dropped from a height of 80 centimeters (about 31 inches).

Unpacking the Scale

- After unpacking the scale, check it immediately for any visible damage as a result of rough handling during shipment.
- If this is the case, proceed as directed in the chapter entitled "Care and Maintenance," under the section on "Safety Inspection."

It is a good idea to save the box and all parts of the packaging until you have successfully installed your scale. Only the original packaging provides the best protection for shipment. Before packing your scale, unplug all connected cables to prevent damage. The strip of cardboard between the display and control unit and the weighing platform is important for protecting the equipment during shipment!

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

Provided that an official seal is required for the verified scale, a control seal is affixed to the scale. This seal will be irreparably damaged if you attempt remove it. If the seal is broken, the validity of the verification will become void and you must have your scale re-verified.

* including the Signatories of the Agreement on the European Economic Area

Warranty

Do not miss out on the benefits of our full warranty. Complete the warranty registration card, indicating the date of installation, and return the card to your Sartorius office or dealer.

Equipment Supplied

The equipment supplied includes the components listed below:

FC06BBE-S

- Complete scale with data interface port
- AC adapter
- Support arm
- Dust cover
- Shield disk
- Pan support
- Weighing pan
- Glass draft shield cylinder
- Draft shield cover

FC6CCE-H, FC2CCE-S

- Complete scale with data interface port
- AC adapter
- Support arm
- Dust cover
- Pan draft shield
- Weighing pan

FC12CCE-S, FC6CCE-S

- Complete scale with data interface port
- AC adapter
- Support arm
- Dust cover
- Weighing pan

FC34EDE-P, FC16EDE-S, FC12EDE-P, FC64EDE-S

- Complete scale with data interface port
- AC adapter
- Support arm
- Weighing pan

Installation Instructions

The Sartorius Factory scales are designed to provide reliable weighing results under normal ambient conditions in the laboratory and in industry. When choosing a location to set up your scale, observe the following so that you will be able to work with added speed and accuracy:

- Set up the scale on a stable, even surface
- Avoid placing the scale in close proximity to a heater or otherwise exposing the scale to heat or direct sunlight
- Protect the scale from drafts that come from open windows or doors
- Avoid exposing the scale to extreme vibrations during weighing
- Protect the scale from aggressive chemical vapors
- Do not expose the scale to extreme moisture over long periods
- Level the scale at the place of installation

Conditioning the Scale

Moisture in the air can condense on the surfaces of a cold scale whenever it is brought into a substantially warmer place. If you transfer the scale to a warmer area, make sure to condition it for about 2 hours at room temperature, leaving it unplugged from AC power. Afterwards, if you keep the scale connected to AC power, the continuous positive difference in temperature between the inside of the scale and the outside will practically rule out the effects of moisture condensation.

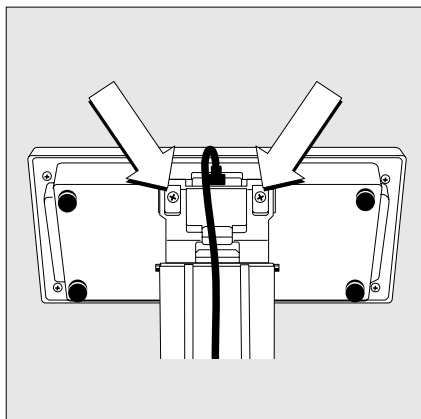
Monitoring Ambient Conditions When Using Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

- For scales of accuracy class I , a thermometer and barometer are recommended for monitoring ambient conditions.

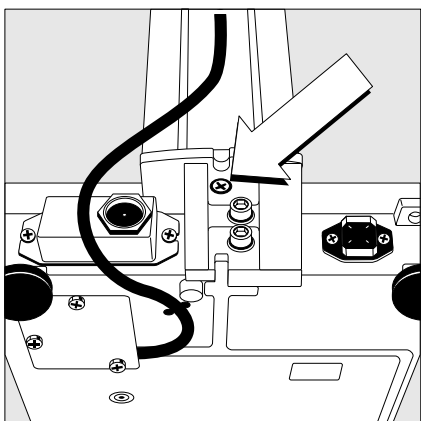
Setting up the Scale and the Column

FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S

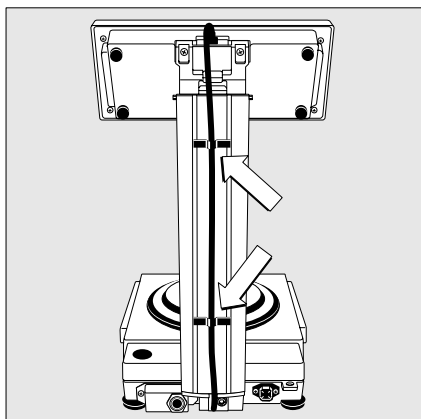
- Fasten the display unit to the retainer using the two Phillips screws supplied



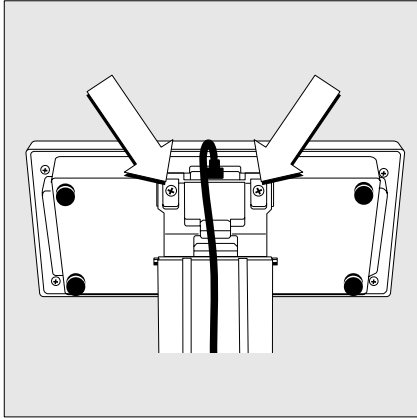
- Fasten the column to the scale using the screws supplied



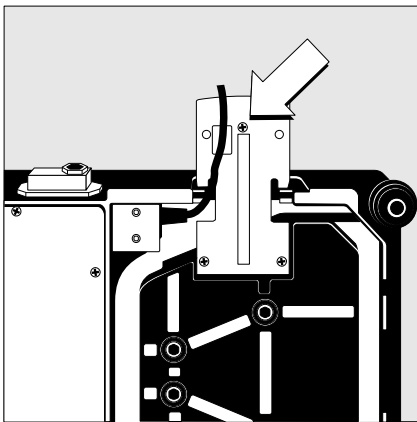
- Press the cable into the two clamps on the back of the column and then press it into the channel (raceway) on the bottom of the scale



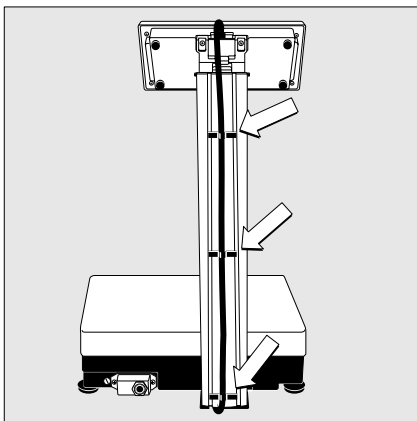
FC34EDE-P, FC16EDE-S, FC12EDE-P, FC64EDE-S



- Fasten the display unit to the retainer using the two Phillips screws supplied

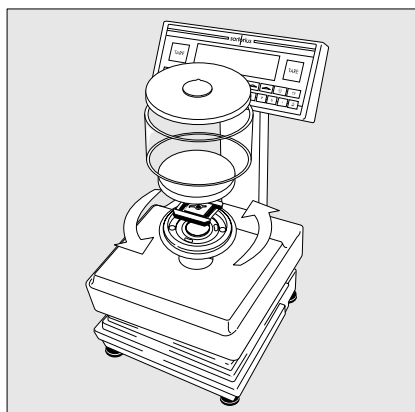


- Fasten the column to the scale using the screws supplied



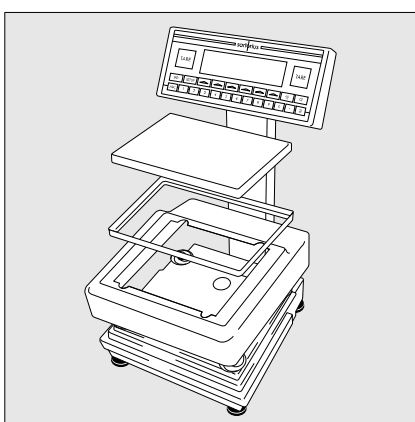
- Press the cable into the three clamps on the back of the column

Preparing the Scale



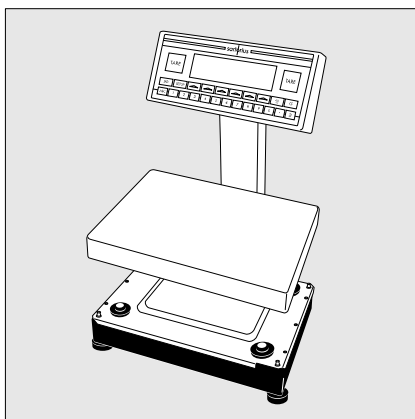
FC06BBE-S

- Place the components listed below on the scale in the order given:
 - Dust cover
 - Protective disk; turn counter-clockwise until it stops and is secure
 - Pan support
 - Weighing pan
 - Glass draft shield cylinder
 - Draft shield cover



FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S

- Place the components listed below on the scale in the order given:
 - Dust cover (remove the protective foil from the adhesive strip)
 - Pan draft shield (depending on the scale model)
 - Weighing pan



FC34EDE-P, FC16EDE-S, FC12EDE-P, FC64EDE-S

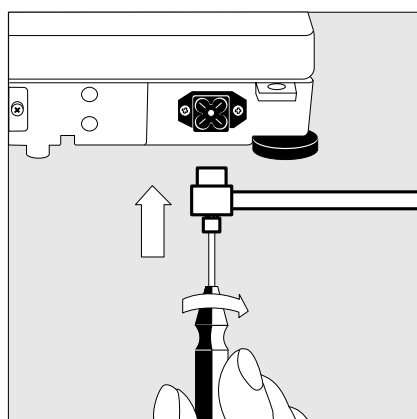
- Place the weighing pan on the scale

Connecting the Scale to AC Power

- Check the voltage rating and the plug design
 - If they do not match the rating or standard you use, contact your Sartorius office or dealer

Use only

- Original Sartorius AC adapters
- AC adapters with a registered approval rating from a national testing laboratory
- To use a main feeder cable from the ceiling or to mount a CEE plug, you will have to make arrangements
- See the chapter entitled "Accessories" for information on using an IP65-protected industrial AC adapter or an external rechargeable battery pack with your scale



- Insert the right-angle plug into the jack and then tighten the screws
- Then insert the plug of the AC adapter into a wall outlet (mains)

Safety Precautions

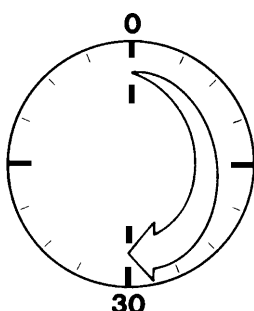
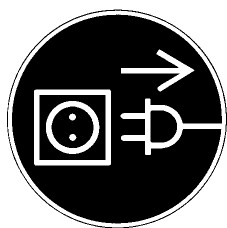
The AC adapter rated to Class 2 can be plugged into any wall outlet without requiring any additional safety precautions. The pole of the output voltage is connected to the scale housing, which can be grounded for operation. The data interface is also electrically connected to the scale housing (ground).

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Sartorius AG could void the user's authority to operate the equipment.

Connecting Electronic Peripheral Devices

- Make absolutely sure to unplug the scale from AC power before you connect or disconnect a peripheral device (printer or PC) to or from the interface port.



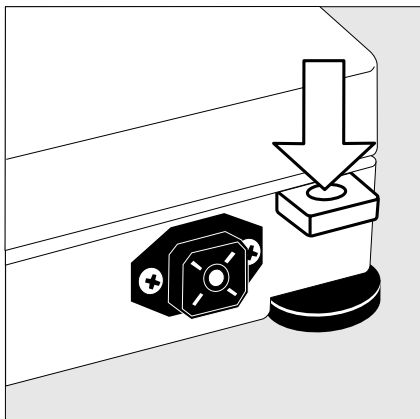
Warmup Time

To deliver exact results, the scale must warm up for at least 30 minutes after initial connection to AC power or after a relatively long power outage. Only after this time will the scale have reached the required operating temperature.

Using Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

- The scale must warm up for at least 24 hours after initial connection to AC power or after a relatively long power outage.

* including the Signatories of the Agreement on the European Economic Area



Fastening an Antitheft Locking Device

- Models FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, and FC6CCE-S only.

To fasten an antitheft locking device, use the lug located on the rear panel of the scale.

- Secure the scale at the place of installation, e.g., with a chain or a lock.

Leveling the Scale

Purpose:

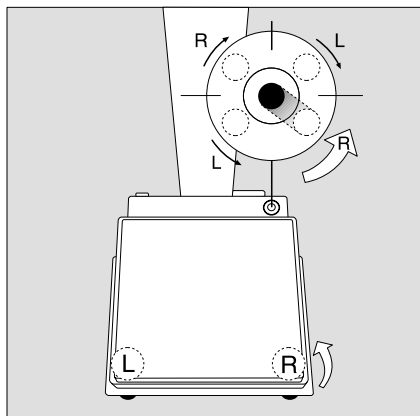
- To compensate for unevenness at the place of installation
- To achieve perfectly horizontal positioning of the scale for consistent reproducibility

Always level the scale again any time it is moved.

Models FC06BBE-S, FC6CCE-H, FC2CCE-S, FC12CCE-S, and FC6CCE-S:

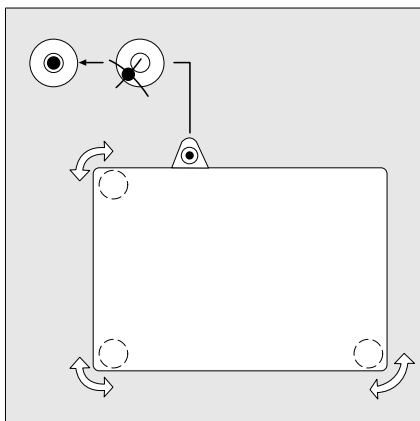
Only the 2 front feet are used for leveling.

- Turn the 2 front feet as shown in the illustration until the air bubble is centered within the circle of the level indicator
- > Several leveling steps are usually required.
- When weighing heavy samples (or when the YDH 01 LP display arm is attached):
Retract the 2 rear feet until they touch the surface on which the scale rests



Models FC34EDE-P, FC16EDE-S, FC12EDE-P, and FC64EDE-S:

- Adjust the three leveling feet until the air bubble is centered within the circle of the level indicator



Setting the Language

- > See the "Setting the Language" section in the chapter entitled "Configuring the Scale"

Setting the Date and Time

- > See the "Entering User Data" section in the chapter entitled "Configuring the Scale"

Configuring the Scale

Purpose

You can configure your Factory scale to meet individual requirements by entering user data and setting parameters in the Setup program.

The Setup menu is divided into three functions: the application menu, scale data and user data input.

You can also configure the display to show scale-specific information (serial no., etc.).

Setting the Language

Features

You can choose from 5 languages for the information display:

- 1 German
- 2 English (factory setting)
- 3 English with US date/time format
- 4 French
- 5 Italian
- 6 Spanish

Selecting the Language

- Enter the corresponding number
- Press **SETUP**
- Exit the Setup menu:
Press **SETUP**

'Info' Display (Info)

Purpose

To have information about the equipment displayed

Display scale-specific information

- Select the Setup program:
Press **SETUP**
- > "SETUP SELECTION" is displayed.

SETUP	SELECTION
App	=> Application menu
Info	=> Balance/scale parameters
Menu	=> Balance/scale menu
Input	=> User data
<<	App Info Menu Input

- Select information:
Press the **Info** soft key
- > Scale-specific information is displayed (see also the "Data Output Functions" section in the chapter entitled "Operating the Scale"):

SETUP	Info
Version no.:	01-35-02
Sal. ver. no.:	00-20-06
Model:	LA5100P
Serial no.:	60906913
<<	

- Print information:
Press **[Q]/[PRINT]**
- > Example of a printout

Mod. **FC6CCE-H**
Ser. no. **70406913**
Ver. no. **01-35-02**
 (Software version, display and control unit)
Ver. no. **00-20-06**
 (Software version, weighing platform)
- Return to
SETUP SELECTION:
Press the **⏮** soft key
- Exit the Setup menu:
Press **SETUP**
- > Scale returns to previous status

Entering User Data (Input)

Purpose

To display, input or change user data. You can block access to these data by assigning a password.

Features

You can display, input or change the following user data:

- Workstation number for the scale: ID (scale ID; max. 20 characters)*
- Weighing series number, to designate a series or lot: L ID (lot ID; max. 20 characters)*
- Weight set number for calibration/adjustment: W ID (weight ID; max. 14 characters)*
- Exact calibration weight value for calibration/adjustment of the scale, e.g. for adjustment according to a DKD certificate (see the section on “Calibration/Adjustment” in the chapter entitled “Operating the Scale”)
- Time (hh.mm.ss; hh can be entered without a preceding zero)
- Date (dd.mm.yy, or mm.dd.yy when you select “English with US date/time” as the language)
- Contrast/angle of the display (enter a number from 0 to 7; factory setting: 3)
- Password for access to the Setup menu, which contains the Input, Application and Scale Menu functions (max. 8 characters)*

*: If the last character of user data is a letter: conclude input by pressing **ABC**

To delete user data: Enter a **.** (decimal point) or a space and confirm

To delete the last character entered: Press **CF** (see the section on “Basic Settings” in the chapter entitled “Operating the Scale”)

Factory Settings

Password: No designation

If no password has been assigned, anyone can access the Setup:Input, Setup:App and Setup:Menu functions without entering a password.

If you assign a password and then forget what the word is, you can use the General Password (see Appendix) to access these menus.

Preparation

Display existing user data

- Select the Setup program:
Press **SETUP**

> “SETUP SELECTION” is displayed.

SETUP	SELECTION
App =>	Realisation menu
Info =>	Balance parameters
Menu =>	Balance menu
Input =>	User data
<<	App Info Menu Input

- Select User Data:
Press the **Input** soft key
If you have already assigned a password:

> The password prompt is displayed

○ If access is blocked by a password: enter the password using the alphanumeric keys

○ If the last character of the password is a letter: conclude input by pressing **ABC**

- Press **↓** to confirm the password

> User data is displayed:

SETUP	INPUT
Identific. (ID):	12345678901234567890
Lot (L ID):	
Wt. ID (W ID):	WT.23 "F1"
Cal./adj. wt.:	2000.00 g
Time:	10.24.18
<<	← → ↵

Enter/Change Password

- Select the Setup program:
Press **SETUP**

> **SETUP SELECTION** is displayed

- Select Information:
Press the **Input** soft key

If you have already assigned a password:

> The password prompt is displayed

SETUP	PASSW.CHECK
Enter password:	
<<	↵

○ Enter the password

○ Press **↓** to confirm the password

> User data is displayed:

- Write down the password here for easy reference:

Password =

If you assign a password and then forget what the word is:

○ Enter the User Password (see Appendix)

○ Press **↓** to confirm the password

> User data is displayed:

- Select the password-setting function:
Press the **↵** soft key repeatedly until

> **Password:** and any existing password are displayed

- New password: Enter the letters/numbers for the new password (max. 8 characters)*

If “none” is displayed as the password, this means no password has been assigned
To delete the password:

Enter **.** and confirm

- To confirm:
press the **↓** soft key







- Exit the Setup menu:
Press **SETUP**

> Restart the application

Practical Example 1:

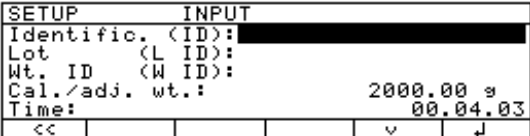
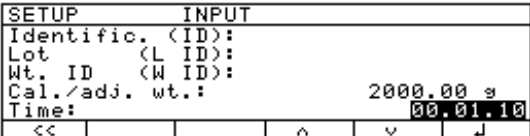
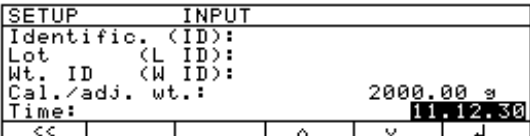
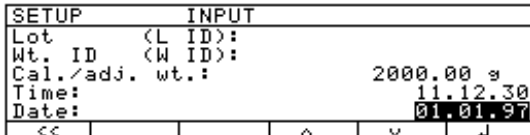
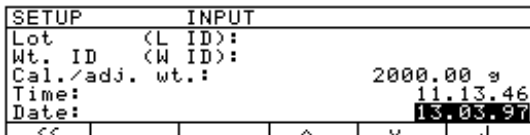


Enter "Workstation 234" as scale ID; display and print other user data

Step	Key (or instruction)	Display/Output
1. Select Setup:Input Display workstation ID (in this example: no ID assigned)	Press SETUP , then the Input soft key	<pre> SETUP INPUT Identific. (ID): Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 << v ↵ </pre>
2. Before entering letters –	Press ABC	<pre> SETUP INPUT Identific. (ID): Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 ABCDEF GHIJKL MNOPQR STUVWX YZ/=-, :##"%' </pre>
3. Select the letters group	Press the STUVWX soft key	<pre> SETUP INPUT Identific. (ID): Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 S T U V W X </pre>
4. Set the letter "M"	Press the W soft key	<pre> SETUP INPUT Identific. (ID): W Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 ABCDEF GHIJKL MNOPQR STUVWX YZ/=-, :##"%' </pre>
5. Enter the next letters of the – scale ID	Press the MNOPQR soft key	<pre> SETUP INPUT Identific. (ID): W Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 M N O P Q R </pre>
6. Set the letter "e"	Press the O soft key	<pre> SETUP INPUT Identific. (ID): WO Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 ABCDEF GHIJKL MNOPQR STUVWX YZ/=-, :##"%' </pre>
7. Repeat steps 5 and 6 to enter the required letters	Soft key ...	
8. Enter the numbers 234 If the last character entered is a letter: Conclude input of letters	2 3 4 ABC	<pre> SETUP INPUT Identific. (ID): WORKSTATION 234 Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 << v ↵ </pre>
9. Store scale ID	Press the ↵ soft key	<pre> SETUP INPUT Identific. (ID): WORKSTATION 234 Lot (L ID): LOT 23 Wt. ID (W ID): WEIGHT 23"F1" Cal./adj. wt.: 2000.00 g Time: 09.00.26 << v ↵ </pre>

Step	Key (or instruction)	Display/Output														
10. Display other user data <ul style="list-style-type: none">– Lot number– Weight set ID– Calibration weight– Time– Date– Display contrast– Password	Press the  soft key repeatedly	<table><tr><th>SETUP</th><th>INPUT</th></tr><tr><td>Identific. <ID>:</td><td>WORKSTATION 234</td></tr><tr><td>Lot <L ID>:</td><td>LOT 23</td></tr><tr><td>Wt. ID <W ID>:</td><td>WEIGHT 23"F1"</td></tr><tr><td>Cal./adj. wt.:</td><td>2000.00 g</td></tr><tr><td>Time:</td><td>09.00.26</td></tr><tr><td><<</td><td></td></tr></table>	SETUP	INPUT	Identific. <ID>:	WORKSTATION 234	Lot <L ID>:	LOT 23	Wt. ID <W ID>:	WEIGHT 23"F1"	Cal./adj. wt.:	2000.00 g	Time:	09.00.26	<<	
SETUP	INPUT															
Identific. <ID>:	WORKSTATION 234															
Lot <L ID>:	LOT 23															
Wt. ID <W ID>:	WEIGHT 23"F1"															
Cal./adj. wt.:	2000.00 g															
Time:	09.00.26															
<<																
11. Print user data (example)	 /[PRINT]	<table><tr><td colspan="2">WORKSTATION 234</td></tr><tr><td>L ID</td><td>LOT 23</td></tr><tr><td>W ID</td><td>WEIGHT 23"F1"</td></tr><tr><td>Cal. Wt.</td><td>+2000.00</td></tr></table>	WORKSTATION 234		L ID	LOT 23	W ID	WEIGHT 23"F1"	Cal. Wt.	+2000.00						
WORKSTATION 234																
L ID	LOT 23															
W ID	WEIGHT 23"F1"															
Cal. Wt.	+2000.00															
12. Exit Setup:Input																

Practical Example 2:

Setting the date and time

Step	Key (or instruction)	Display/Output
1. Select Setup:Input Display workstation ID	Press SETUP , then the Input soft key	
2. Select the time	Press the ▼ soft key repeatedly	
3. Enter the time	1 1 . 1 2 . 3 0	
4. Set the selected time and restart the clock	Press the ↓ soft key	
5. Select the date	Press the ▼ soft key	
6. Enter the date	1 3 . 0 3 . 9 7	
7. Store the date	Press the ↓ soft key	
8. Display other user data – Lot number – Weight set ID – Calibration weight – Time – Date – Display contrast – Password	Press the ▼ or ▲ soft key	
9. Exit Setup:Input	SETUP	

Application Menu Settings (APP)

Purpose

To configure the scale, i.e., adapt the scale to individual requirements by selecting from a list of parameter options in a menu. You can block access to this menu by assigning a password.

Features

The simple weighing function is available at all times. You can select one from each of the following application groups. This means a number of combinations are possible.

Application 1

- Toggle between 2 weight units
- Counting
- Weighing in percent
- Animal weighing
- Calculation

Application 2

- Checkweighing
- Time-controlled functions

Application 3

- Totalizing
- Formulation
- Statistics

In addition, you can assign 2 extra functions to each of the soft keys, in some cases (depends on the Setup configuration):

- 2nd tare memory
- Identification code
- Manual totalizing

Factory Settings

The factory-set configurations are marked with an "o" in the list starting on page 21.

Preparation

- Select the Setup program:
Press **SETUP**
- > **SETUP SELECTION** is displayed
- Select the application menu:
Press the **APP** soft key
If a password has been assigned:
 - > The password prompt is displayed
- Enter the password
- Confirm the password entered:
Press the **↓** soft key
- > The application menu is displayed (1st menu level):

SETUP	APPLICATION
Application 1	Toggle wt. units
Application 2	Counting
Application 3	Percent weigh.
Extra func. (F4)	Animal weigh.
Extra func. (F5)	Calculation
<< Menu	>

- Select the next group:
Press the **↓** soft key (arrow down)
- To select the previous item in the group: press **↑** soft key (arrow up)
- To select one item lower in the group: Press the **→** soft key (arrow right)
- To return to the next level up:
Press the **←** soft key (arrow left)
- Confirm the selected menu item:
Press the **↓** soft key
- Move the highlight bar to the first menu item on the list: Press **CF**
- Toggle to the Setup:Scale menu (see also page 28):
Press the **Menu** soft key

Additional Functions

- Save settings and exit the application menu: Press **SETUP**
- > Restart the application
- Print parameter settings:
 - When the application menu is displayed: Press **Q**/[PRINT]
- > Printout (Example)

Application 1

Counting

Average piece weigh
Display accuracy
Average piece weigh
Automatic

Application 2

Checkweighing

Activation of port
Within checkweighi
Type of checkweighi
Target, minimum, m
Weight display mode
Absolute value
Automatic printout
No

Application 2

Totalizing


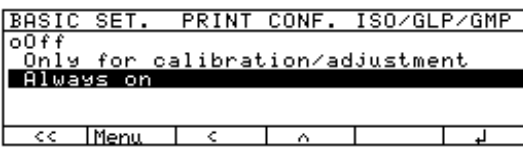

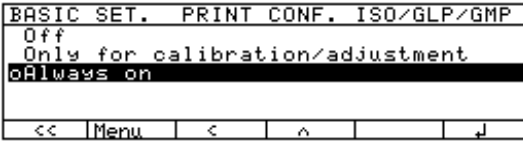



etc.

- To reset parameters to the factory settings: see the following chapter, entitled "Scale Operating Menu," and set menu code **9 1 1**

Practical Example

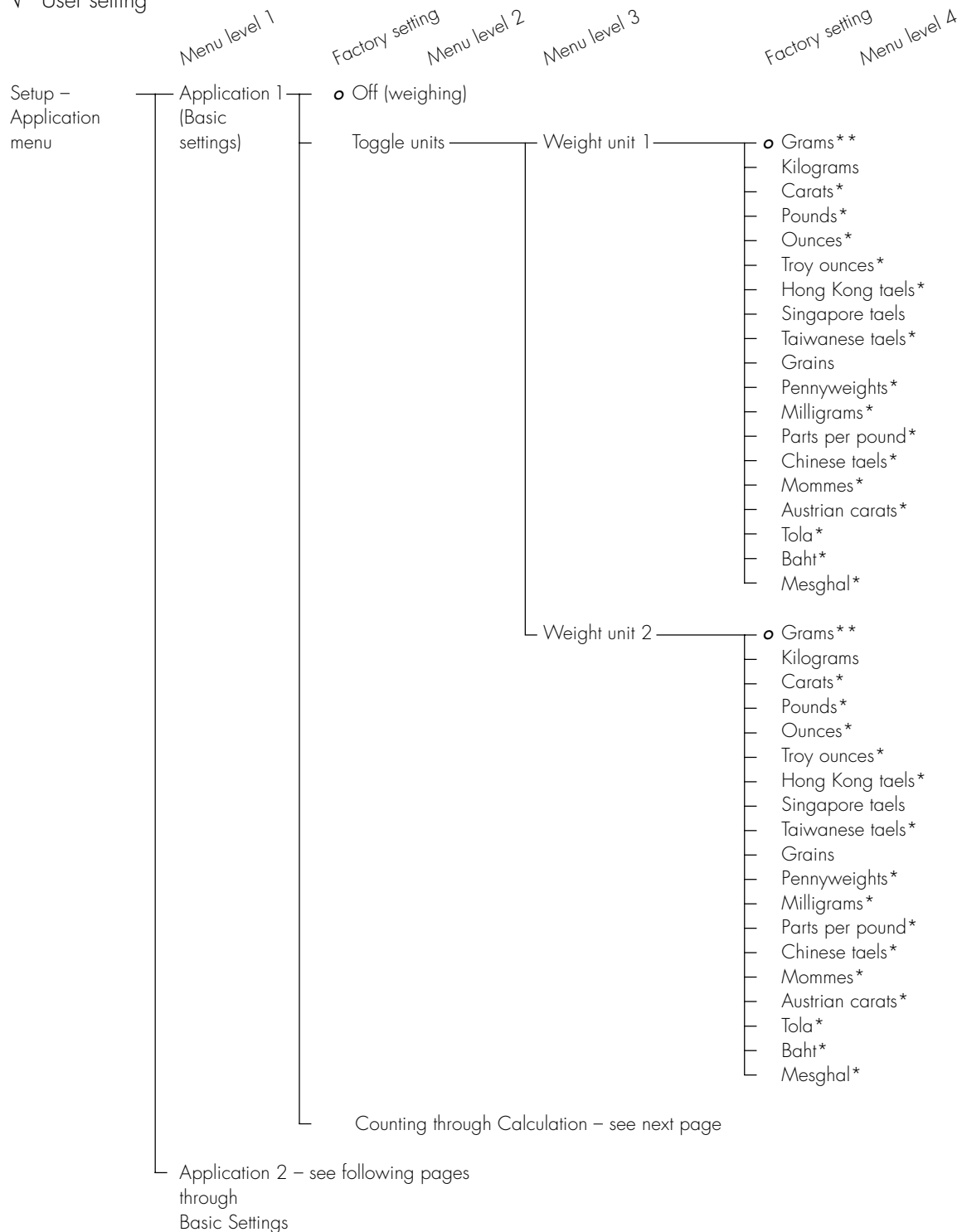
Make every printout a ISO/GLP-compliant printout

Step	Key (or instruction)	Display/Output
1. Select Setup	SETUP	<pre> SETUP SELECTION App => Application menu Info => Balance parameters Menu => Balance menu Input => User data << App Info Menu Input </pre>
2. Select the application menu	Press the App soft key	<pre> SETUP APPLICATION Application 1 => Toggle wt.units Application 2 Counting Application 3 Percent weigh. Extra func. (F4) Animal weigh. Extra func. (F5) Calculation << Menu v > </pre>
3. Menu level 1: Select Basic Settings	Press the v soft key repeatedly	<pre> SETUP APPLICATION Application 2 => Keypad Application 3 Display Extra func. (F4) Printout Extra func. (F5) Auto-start app. Basic settings << Menu ^ > </pre>
4. Confirm selection	Press the > soft key	<pre> SETUP APPLICATION BASIC SET. Keypad Display Printout configuration Auto-start app. when power goes on << Menu < v > </pre>
5. Menu level 2: Select Printout Configuration	Press the v soft key twice	<pre> SETUP APPLICATION BASIC SET. Keypad Display Printout configuration Auto-start app. when power goes on << Menu < ^ v > </pre>
6. Confirm selection and go to menu level 3	Press the > soft key	<pre> APPLICATION BASIC SET. PRINT CONF. Auto print upon initialization Line format ISO/GLP/GMP printout << Menu < v > </pre>
7. Menu level 3: Select "ISO/GLP/GMP Printout"	Press the v soft key twice	<pre> APPLICATION BASIC SET. PRINT CONF. Auto print upon initialization Line format ISO/GLP/GMP printout << Menu < ^ > </pre>
8. Confirm selection and go to menu level 4	Press the > soft key	<pre> BASIC SET. PRINT CONF. ISO/GLP/GMP Off Only for calibration/adjustment Always on << Menu < v J > </pre>

Step	Key (or instruction)	Display/Output
9. Menu level 4: Select "Always"	Press the  soft key twice	
10. Confirm selection	Press the  soft key	
11. Set other menu codes, if desired	  soft key	
12. Confirm setting and exit Setup		

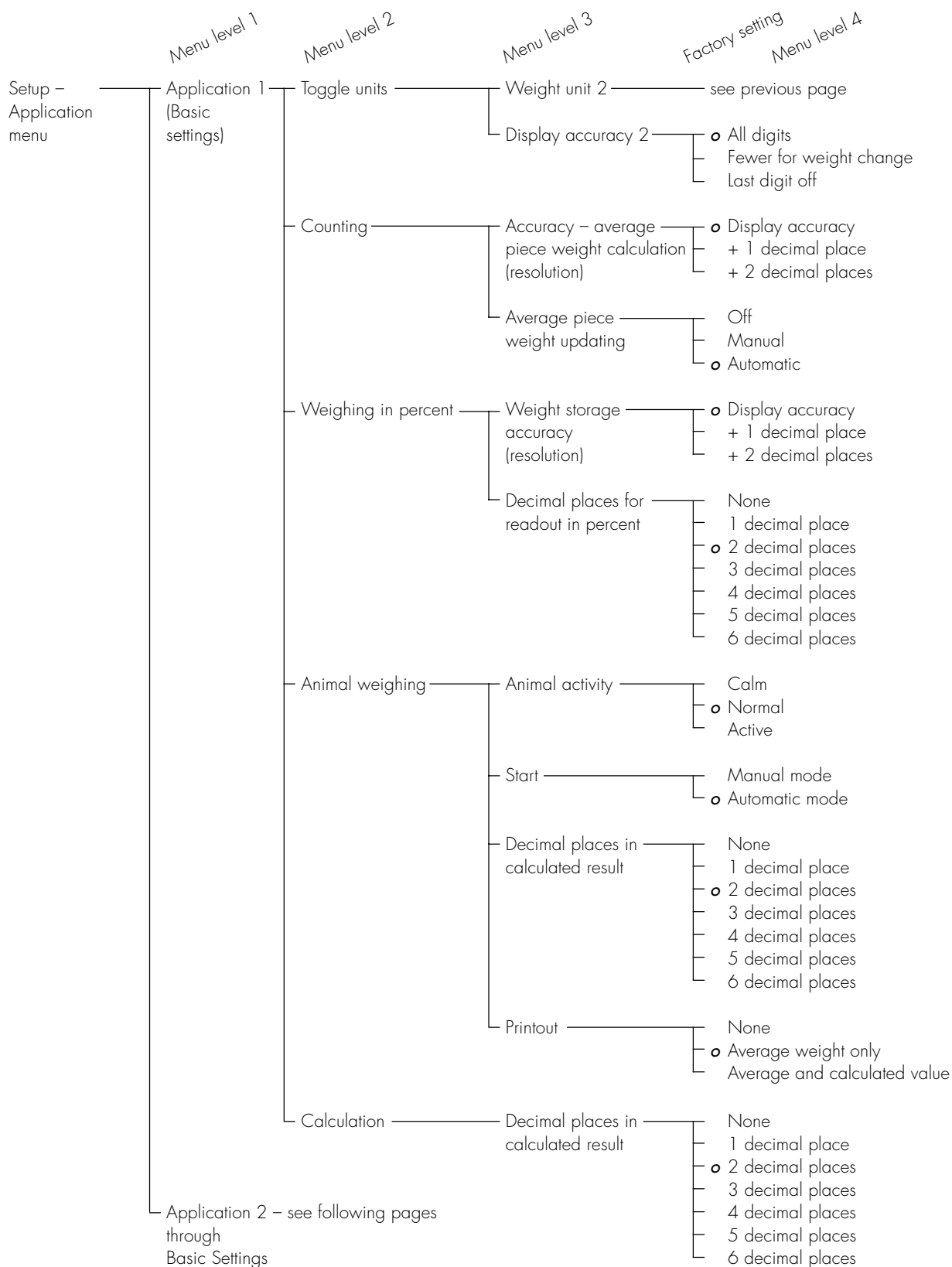
Setup Parameters, "Application Menu" (Overview)

- Factory setting
- ✓ User setting

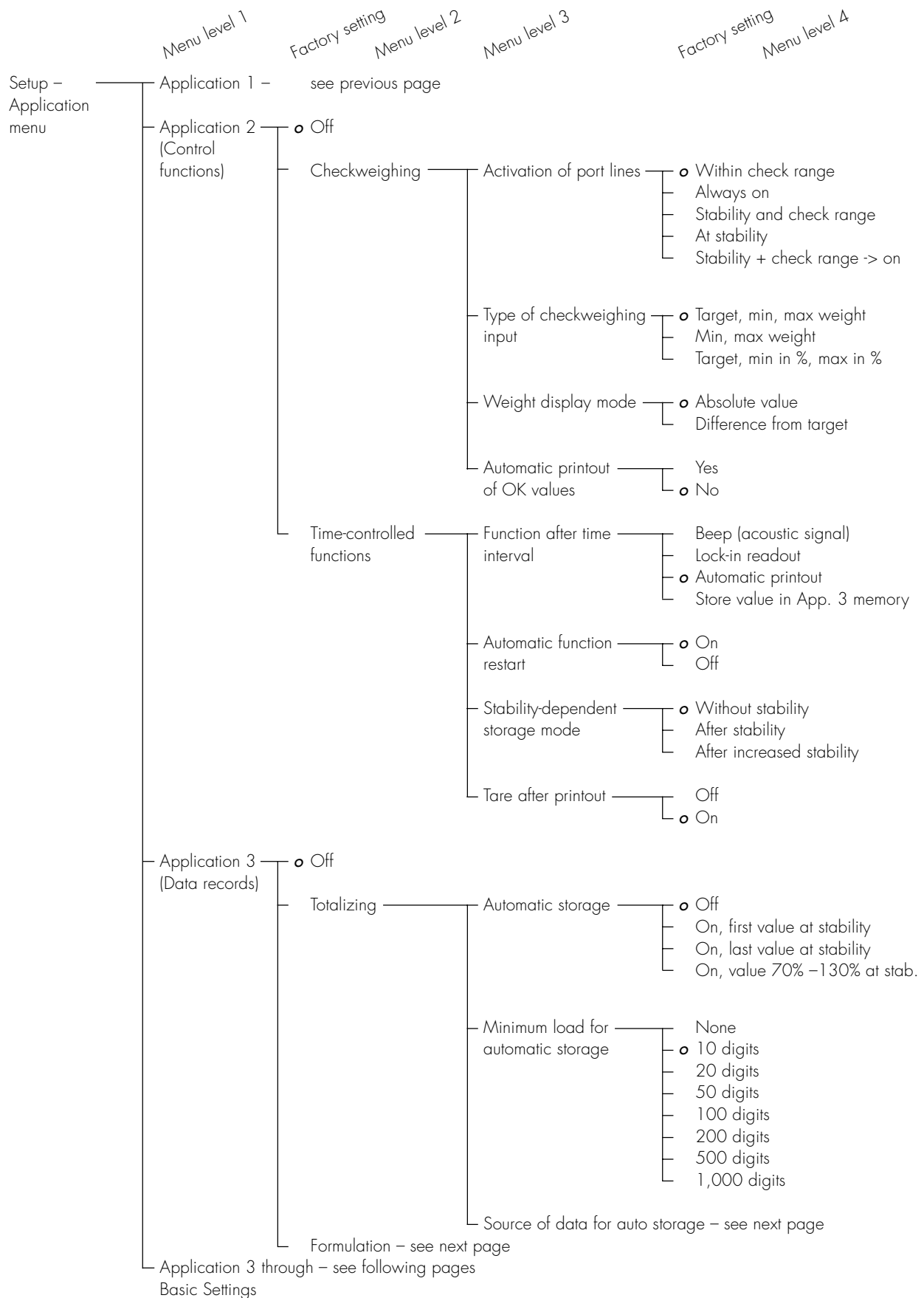


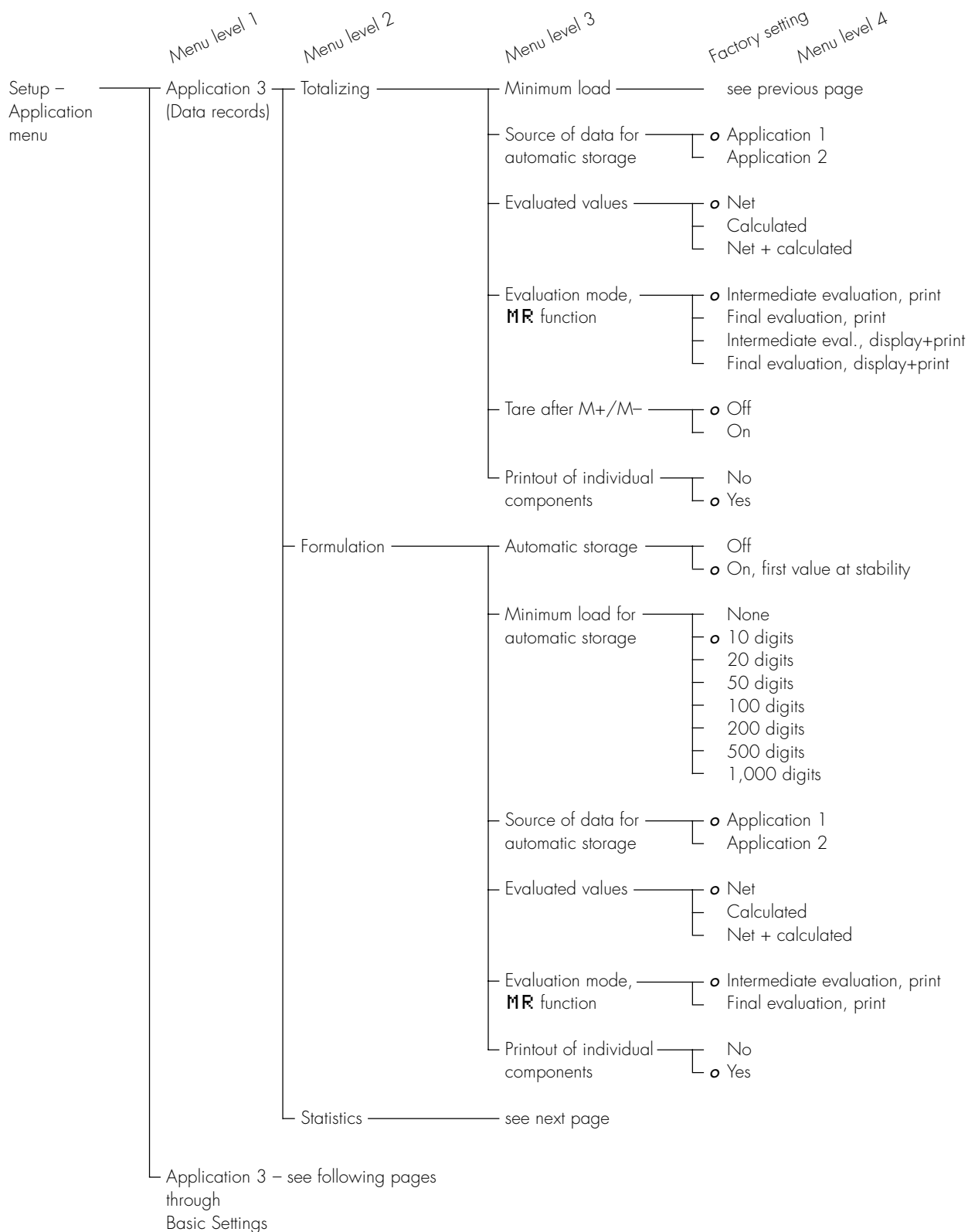
* = not applicable to verified scales

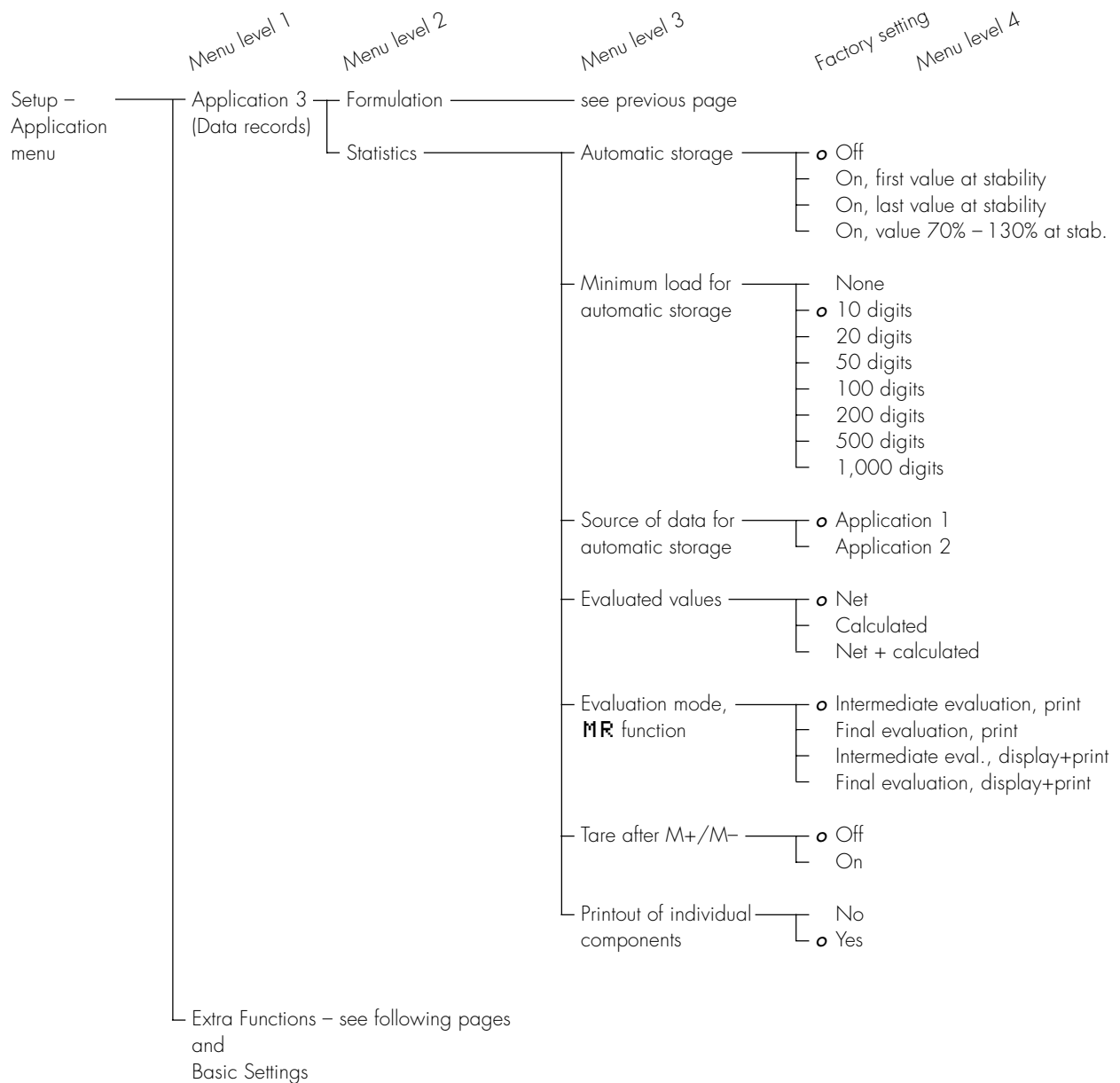
** = not applicable to model FC64EDE-S0CE

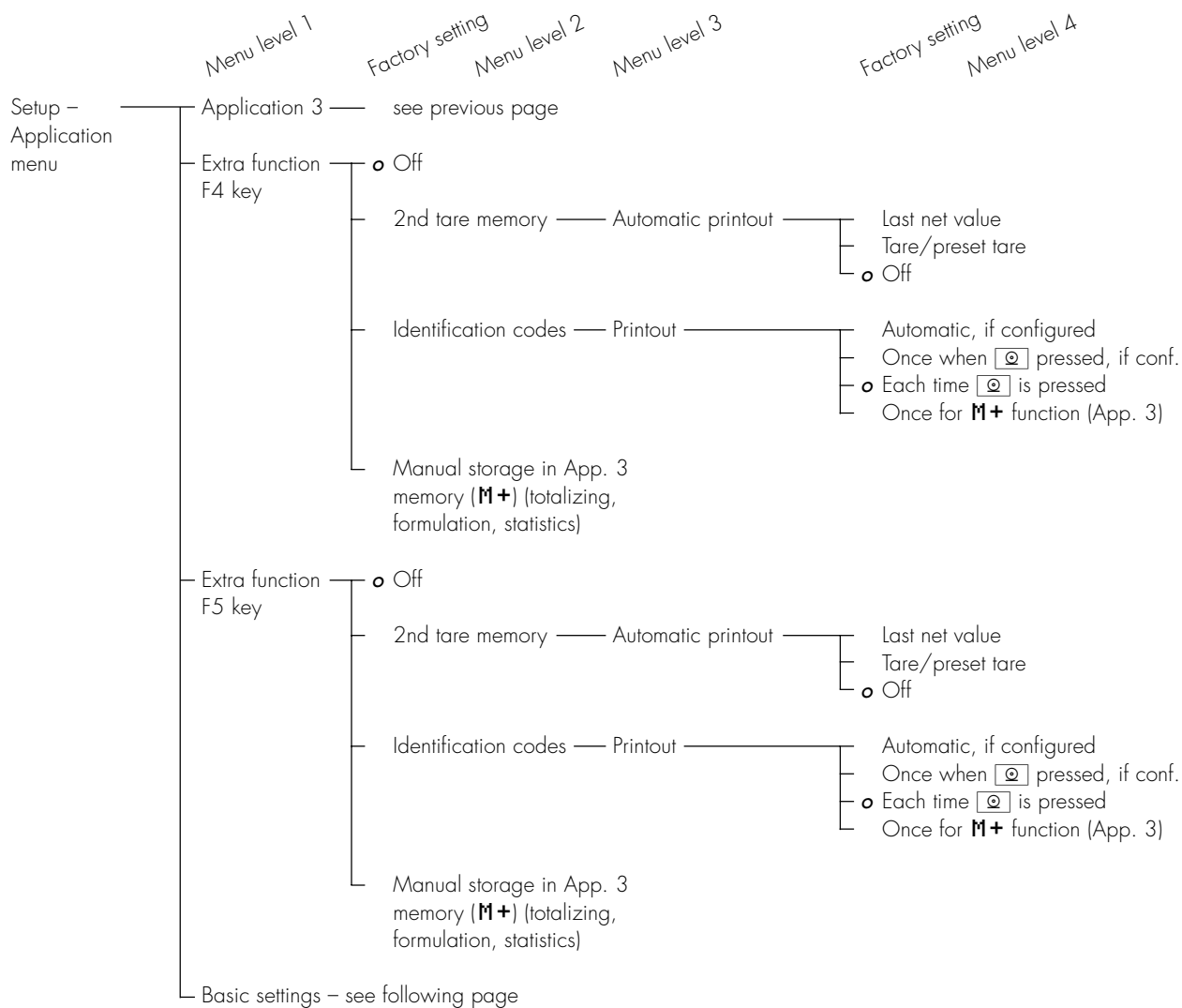


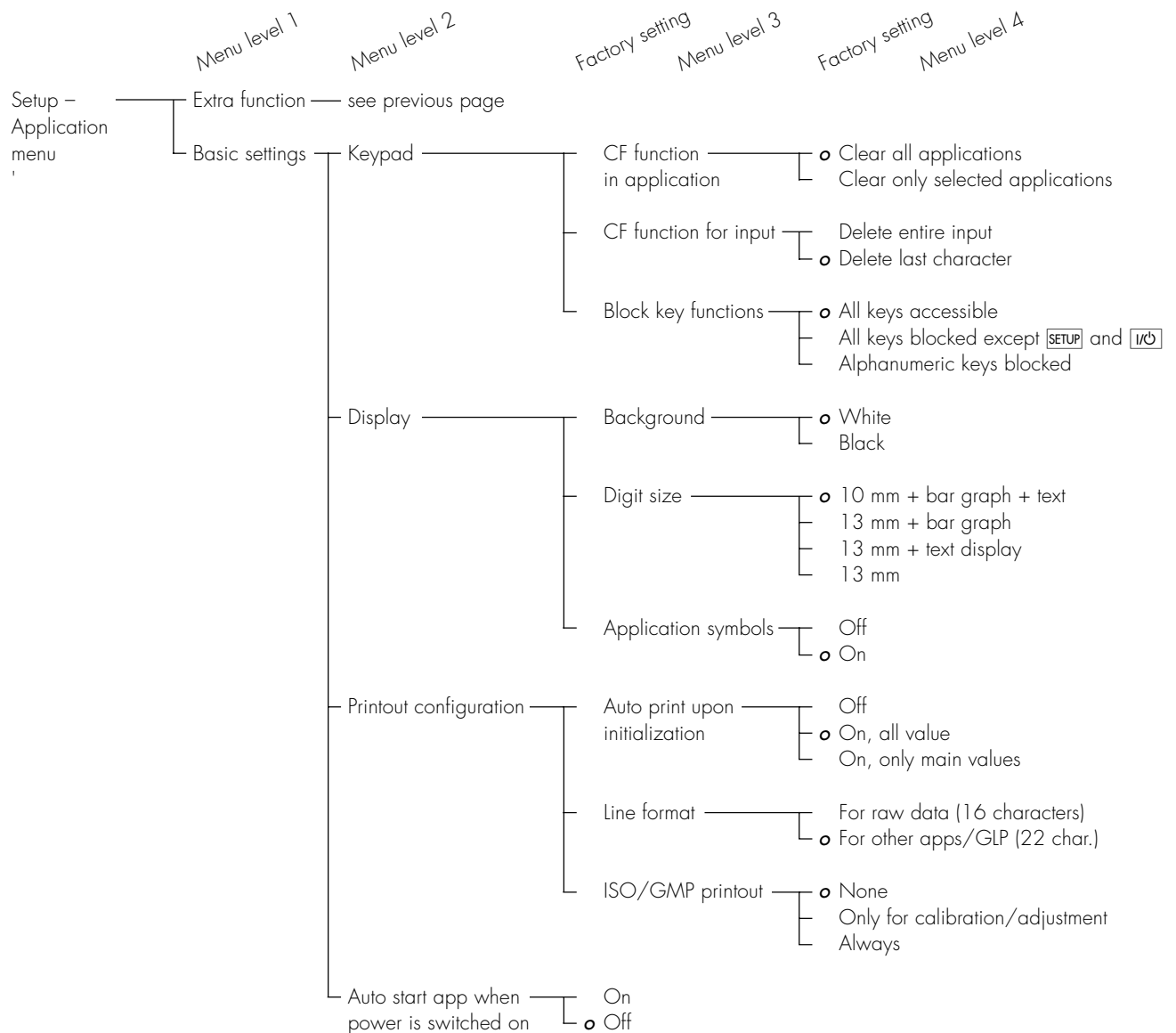
* = not applicable to verified scales











Scale Operating Menu (Menu)

Purpose

To configure the scale, i.e., adapt the scale to individual requirements by selecting from a list of parameter options in a menu. You can block access to this menu by assigning a password.

Features

The parameters are grouped together as follows (menu level 1):

- 1 Scale functions
- 5 Interface
- 6 Print in weighing mode
- 8 Extra functions
- 9 Reset menu

Factory Settings

The factory-set configurations are marked with an "o" in the list starting on page 29.

Preparation

- Select the Setup program:
Press **SETUP**
- > **SETUP SELECTION** is displayed
- Select the scale menu:
Press the **Menu** soft key
If a password has been assigned:
> The password prompt is displayed
- Enter the password
- Confirm the password entered:
Press the **↓** soft key
- > The scale menu is displayed (1st menu level):

SETUP	MENU	[]
1 Balance/scale functions		
2 Interface		
6 Print in weighing mode		
8 Extra functions		
9 Reset menu		
<<	App	>

- Select the next group:
Press the **↓** soft key (arrow down)
- To select the previous item in the group: press **↑** soft key (arrow up)
- To select one item lower in the group: Press the **→** soft key (arrow right)
- To return to the next level up:
Press the **←** soft key (arrow left)
- Confirm the selected menu item:
Press the **↓** soft key
- Toggle to the Setup:Application menu (see also page 17):
Press the **App** soft key

Additional Functions

- Save settings and exit the application menu: Press **SETUP**
- > Restart the application
- Print parameter settings:
 - When the 3rd menu level is displayed: Press **[Q]/[PRINT]**
 - > Printout (Example)


```

6  1 Manual/auto pr
   2 Manual with s
          
```
 - When the 3rd menu level is displayed: Press **[Q]/[PRINT]**
 - > Printout (Example)


```

6 Print in weighing
-----
6  1 Manual/auto pr
   2 Manual with s
6  2 Stop auto prin
   2 Not possible
6  3 Time-dependent
   1 1 display upd
6  4 Print on reque
   1 Off
          
```
 - When the 1st menu level is displayed: Press **[Q]/[PRINT]**
 - > All current parameters settings are printed

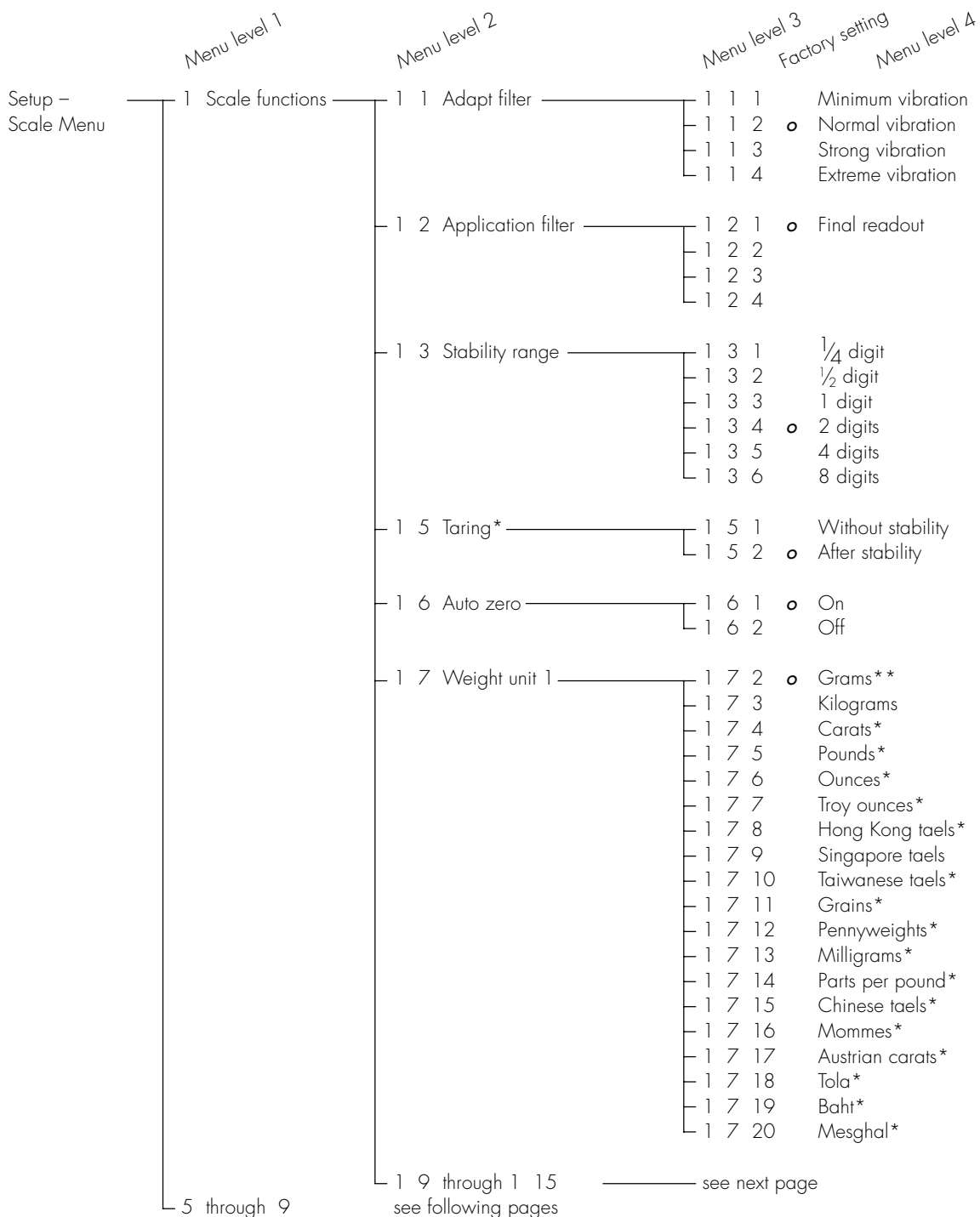
Practical Example

Adapt the scale to ambient conditions of "extreme vibration."

Step	Key (or instruction)	Display/Output																																				
1. Select Setup	<div>SETUP</div>	<div><table><tr><th>SETUP</th><th>SELECTION</th></tr><tr><td>App</td><td>=> Application menu</td></tr><tr><td>Info</td><td>=> Balance/scale parameters</td></tr><tr><td>Menu</td><td>=> Balance/scale menu</td></tr><tr><td>Input</td><td>=> User data</td></tr><tr><td><<</td><td>App</td></tr><tr><td>Info</td><td></td></tr><tr><td>Menu</td><td></td></tr><tr><td>Input</td><td></td></tr></table></div>	SETUP	SELECTION	App	=> Application menu	Info	=> Balance/scale parameters	Menu	=> Balance/scale menu	Input	=> User data	<<	App	Info		Menu		Input																			
SETUP	SELECTION																																					
App	=> Application menu																																					
Info	=> Balance/scale parameters																																					
Menu	=> Balance/scale menu																																					
Input	=> User data																																					
<<	App																																					
Info																																						
Menu																																						
Input																																						
2. Select the scale menu	Press the Menu soft key	<div><table><tr><th>SETUP</th><th>MENU</th><th>[</th><th>]</th></tr><tr><td>1</td><td>Balance/scale functions</td><td></td><td></td></tr><tr><td>2</td><td>Interface</td><td></td><td></td></tr><tr><td>6</td><td>Print in weighing mode</td><td></td><td></td></tr><tr><td>8</td><td>Extra functions</td><td></td><td></td></tr><tr><td>9</td><td>Reset menu</td><td></td><td></td></tr><tr><td><<</td><td>App</td><td></td><td>></td></tr></table></div>	SETUP	MENU	[]	1	Balance/scale functions			2	Interface			6	Print in weighing mode			8	Extra functions			9	Reset menu			<<	App		>								
SETUP	MENU	[]																																			
1	Balance/scale functions																																					
2	Interface																																					
6	Print in weighing mode																																					
8	Extra functions																																					
9	Reset menu																																					
<<	App		>																																			
3. Confirm selection of scale function menu	Press the ➤ soft key	<div><table><tr><th>MENU</th><th>BAL.FUNC.</th><th>[</th><th>1-</th><th>]</th></tr><tr><td>1</td><td>Adapt filter</td><td></td><td></td><td></td></tr><tr><td>2</td><td>Application filter</td><td></td><td></td><td></td></tr><tr><td>3</td><td>Stability range</td><td></td><td></td><td></td></tr><tr><td>5</td><td>Taring</td><td></td><td></td><td></td></tr><tr><td>6</td><td>Auto zero</td><td></td><td></td><td></td></tr><tr><td><<</td><td>App</td><td><</td><td></td><td>></td></tr></table></div>	MENU	BAL.FUNC.	[1-]	1	Adapt filter				2	Application filter				3	Stability range				5	Taring				6	Auto zero				<<	App	<		>	
MENU	BAL.FUNC.	[1-]																																		
1	Adapt filter																																					
2	Application filter																																					
3	Stability range																																					
5	Taring																																					
6	Auto zero																																					
<<	App	<		>																																		
4. Confirm selection of filter adaptation menu item	Press the ➤ soft key	<div><table><tr><th>BAL.FUNC.</th><th>ADAPT FILT.</th><th>[</th><th>1-</th><th>1-</th><th>]</th></tr><tr><td>1</td><td>Minimum vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>Normal vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>Strong vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td>Extreme vibration</td><td></td><td></td><td></td><td></td></tr><tr><td><<</td><td>App</td><td><</td><td>^</td><td>v</td><td>↓</td></tr></table></div>	BAL.FUNC.	ADAPT FILT.	[1-	1-]	1	Minimum vibration					2	Normal vibration					3	Strong vibration					4	Extreme vibration					<<	App	<	^	v	↓
BAL.FUNC.	ADAPT FILT.	[1-	1-]																																	
1	Minimum vibration																																					
2	Normal vibration																																					
3	Strong vibration																																					
4	Extreme vibration																																					
<<	App	<	^	v	↓																																	
5. Menu level 3: Select the desired item	Press the ⬇ soft key twice	<div><table><tr><th>BAL.FUNC.</th><th>ADAPT FILT.</th><th>[</th><th>1-</th><th>1-</th><th>]</th></tr><tr><td>1</td><td>Minimum vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>Normal vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>Strong vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td>Extreme vibration</td><td></td><td></td><td></td><td></td></tr><tr><td><<</td><td>App</td><td><</td><td>^</td><td></td><td>↓</td></tr></table></div>	BAL.FUNC.	ADAPT FILT.	[1-	1-]	1	Minimum vibration					2	Normal vibration					3	Strong vibration					4	Extreme vibration					<<	App	<	^		↓
BAL.FUNC.	ADAPT FILT.	[1-	1-]																																	
1	Minimum vibration																																					
2	Normal vibration																																					
3	Strong vibration																																					
4	Extreme vibration																																					
<<	App	<	^		↓																																	
6. Confirm selection	Press the ⬇ soft key	<div><table><tr><th>BAL.FUNC.</th><th>ADAPT FILT.</th><th>[</th><th>1-</th><th>1-</th><th>]</th></tr><tr><td>1</td><td>Minimum vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td>Normal vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td>Strong vibration</td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td>Extreme vibration</td><td></td><td></td><td></td><td></td></tr><tr><td><<</td><td>App</td><td><</td><td>^</td><td></td><td>↓</td></tr></table></div>	BAL.FUNC.	ADAPT FILT.	[1-	1-]	1	Minimum vibration					2	Normal vibration					3	Strong vibration					4	Extreme vibration					<<	App	<	^		↓
BAL.FUNC.	ADAPT FILT.	[1-	1-]																																	
1	Minimum vibration																																					
2	Normal vibration																																					
3	Strong vibration																																					
4	Extreme vibration																																					
<<	App	<	^		↓																																	
7. Set other menu codes, if desired	⬇ ^ soft keys																																					
8. Confirm setting and exit Setup	<div>SETUP</div>																																					

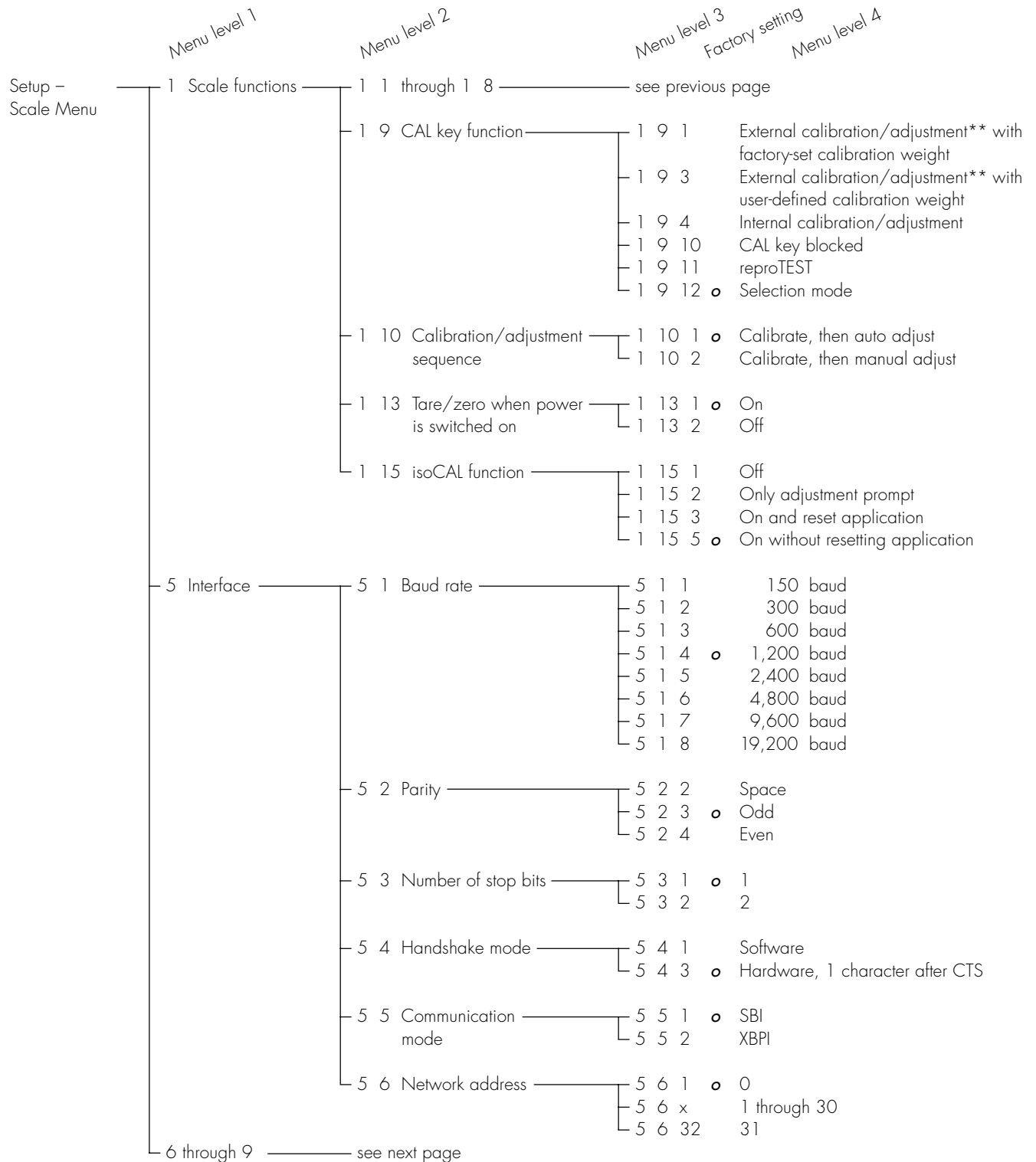
Setup Parameters, "Scale Menu" (Overview)

- Factory setting
- ✓ User setting



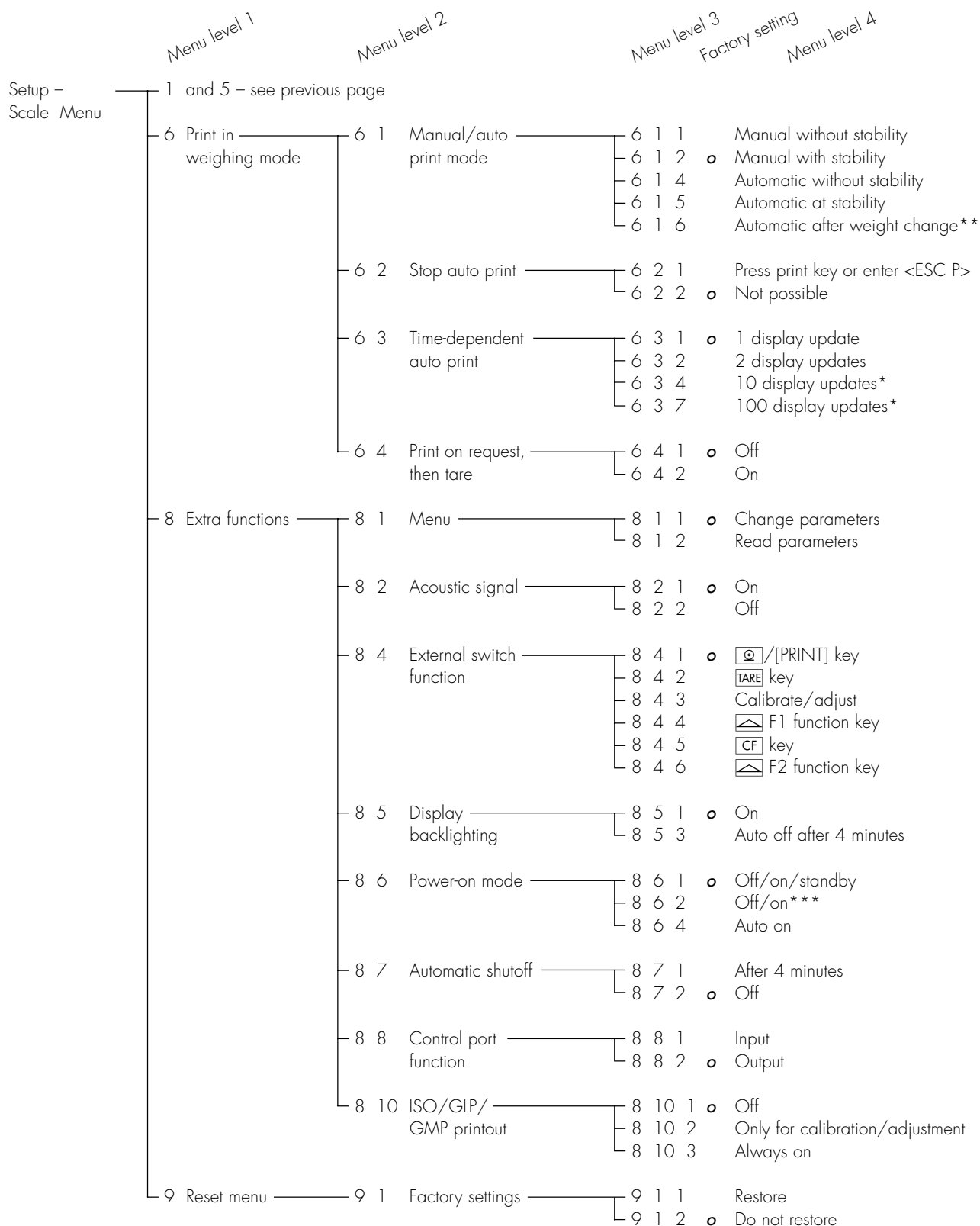
* = not applicable to verified scales

** = not applicable to model FC64EDE-S0CE



* = not applicable to verified scales

** = verified scales can only be calibrated, not adjusted



* = not applicable to verified scales

** = auto print when load change is > 10 d; no printout until residual difference in load value is < 5 d

*** = not applicable to scales with a weighing capacity of ≥ 16 kg

Operating the Scale

Basic Weighing Function

Purpose

The basic weighing function is always accessible and can be used alone or in combination with an application program (Toggle between Weight Units, Counting, Weighing in Percent, etc.).

Features

- Taring the scale
- Assigning IDs to weights
- Printing weights
- Printing ID codes for weights

Factory Settings

Tare: **After stability**

Manual/auto print mode:
Manual with stability

Line format:
**For other apps/GLP
(22 characters)**

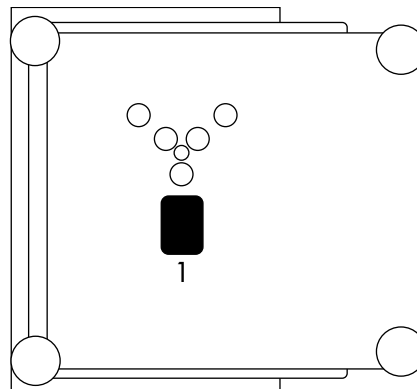
Soft Key Functions

- isoTST** Initiate calibration/
adjustment routine
- isoCAL** Press to start isoCAL
routine
- S ID** Store ID entered

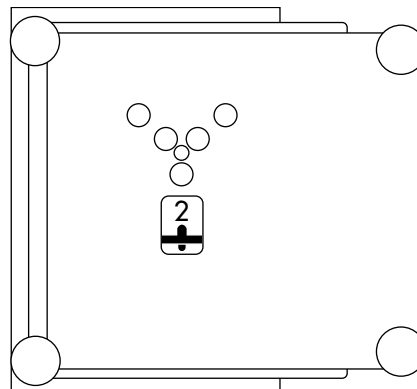
Below-Scale Weighing

A port for a below-scale weighing hanger is located on the bottom of the scale (for scales with a weighing capacity ≥ 12 kg, see the "Accessories" section in the chapter entitled "Overview").

- Open cover plate **(1)** on the bottom of the scale



- Attach the sample (e.g., using a suspension wire) to the hook **(2)**.



- If necessary, install a shield for protection against drafts

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

The below-scale weighing port may not be opened or used when an approved scale is being operated as a legal measuring instrument.

Preparation

- Turn on the scale:
Press **100**/[ON/OFF]
- > The Sartorius logo is displayed
- To tare the scale, if desired:
Press **TARE**
- > The **0** symbol is displayed when a verified scale is tared or zeroed (± 0.25 digits).

Important Note Concerning Verified Scales Approved for Use as Legal Measuring Instruments in the EU*:

This scale is not allowed to be used for weighing goods intended for direct sale to the public. The type-approval certificate for verification applies only to non-automatic weighing instruments; for automatic operation with or without auxiliary measuring devices, you must comply with the regulations of your country applicable to the place of installation of your scale.

- You must calibrate the scale at the place of installation before using it as a legal measuring instrument (see the section entitled "Calibration and Adjustment" in this chapter)
- The temperature range indicated on the verification ID label must not be exceeded during operation

Example:
MA BF 200
Ⓜ +10 °C./+30 °C

* including the Signatories of the Agreement on the European Economic Area

ID for weight value (if desired):

- Select the parameters "Line format" and "For other app./GLP" from the Setup menu:
Press **SETUP**
- Select mode:
Press the **APP** softkey
- Set parameters:
See the chapter entitled "Configuring the Scale"
- Exit the Setup program:
Press **SETUP**

Additional Functions

In addition to the functions:

- alphanumeric input
- taring (not during alphanumeric input)
- printing

you can also access the following functions from the weighing application:

- calibration (not during alphanumeric input)
- setup
- turning off the scale

Calibration

- Press **isoTST**
 - > See the section on "Calibration/Adjustment" for further instructions.

Setup

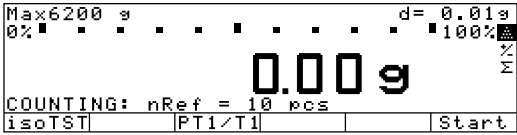
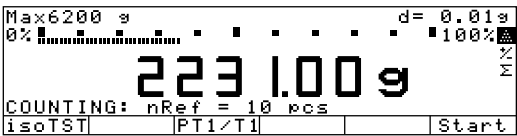
- Press **SETUP**
 - > See the chapter entitled "Configuring the Scale" for further instructions.

Turning Off the Scale

- Press **1/O**/[ON/OFF]
 - > The scale shuts off
 - > The display goes blank

Practical Examples

Example W1: Simple weighing

Step	Key (or instruction)	Display/Output						
1. If necessary, tare the scale (O symbol: scale is tared, – verified scales only)	TARE							
2. Enter sample ID	see Example W2							
3. Determine sample weight (Example)	Place load on scale							
4. Print weight value	1/O /[PRINT]	<table><tr><td>S</td><td>ID</td><td>ABC123</td></tr><tr><td>N</td><td>+</td><td>2231.56 g</td></tr></table>	S	ID	ABC123	N	+	2231.56 g
S	ID	ABC123						
N	+	2231.56 g						

Example W2

Enter "ABC123" as sample ID

Note:

- The sample ID generally applies to one weighing operation only
- The ID is deleted after data output

Step	Key (or instruction)	Display/Output
Initial status (scale unloaded) (ID can also be entered while scale is loaded)		
1. Select alphabetic input	ABC	
2. Select the required letter group	ABCDEF soft key	
3. Enter the letter "A" (To delete a letter:	A soft key CF)	
4. Select the letter group and enter "B"	ABCDEF soft key B soft key	
5. Select the letter group and enter "C" (If only letters are entered, conclude input:	ABCDEF soft key C soft key ABC)	
6. Enter the numbers 1, 2 and 3	1 2 3	
7. Store the ID (max. 20 characters) – The next printout will include the sample ID	S ID soft key	

Calibration/Adjustment "isoTEST"

Purpose

Calibration is the determination of the difference between the weight readout and the true weight (mass) of a sample. Calibration does not entail making any changes within the scale.

Adjustment is the correction of this difference between the measured value displayed and the true weight (mass) of the sample, or the reduction of the difference to an allowable level within maximum permissible error limits.

Using Verified Scales as Legal Measuring Instruments in the EU*:

Before using your scale as a legal measuring instrument, you must perform "internal calibration" at the place of installation after the warmup period.

Available Features

You can start the isoTEST function at the press of a key to check a scale used as measuring, inspection and test equipment at any time. The scale is calibrated and any deviation is displayed. Press the **Start** soft key to start adjustment. If you do not wish to have the scale adjusted, press the **End** soft key to cancel the isoTEST.

Your scale can be calibrated externally (Scale menu: CAL/isoTST key function; menu item **Ext. cal./adj.: factory-def. wt.** or **Ext. cal./adj.: user-defined wt.**) or internally (**Internal cal./adjustment**).

External calibration can be performed

- using a pre-set weight value
Ext. cal./adj.: factory-def. wt., or
- with a user-defined weight
Ext. cal./adj.: user-defined wt.

The adjustment can be performed

- automatically following calibration: **Cal., then auto adjust.** or
- if desired, the adjustment operation can be started manually after calibration: **Cal., then manual adjust**

You can also configure whether the calibration mode

- will be activated according to the specific setting (external/internal) or
- can be selected by the user after pressing the **isoTST** soft key: **Selection mode**.

You can have the scale automatically display an adjustment prompt after a certain time interval has elapsed since the last calibration/adjustment or when the ambient temperature changes by a defined amount.

You can also configure the scale to perform calibration and adjustment automatically (isoCAL) when the pre-set time and/or temperature limit is reached **On and reset application app.** and **On without resetting app.**

You can have the calibration/adjustment results documented in a ISO/GMP-compliant printout; see page 100.

Factory Settings

Calibration/adjustment mode:

Internal cal./adjustment

Calibration/adjustment sequence:

Calibrate, then manual adjust

isoCAL function (automatic initiation of cal./adj. sequence):
On without resetting app.

External Calibration in Verified Scales of Accuracy Class (II)

- External calibration is blocked when the scale is used in legal metrology
- > External calibration can only be released after removing the verification control seal, in which case the validity of the verification becomes void and the scale must be re-verified
- External calibration can now be performed

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Preparation

Set the parameters for calibration and adjustment; e.g., with automatic calibration/adjustment, isoCAL on

Step	Key (or instruction)	Display/Output
1. Switch on the scale	/[ON/OFF]	Sartorius logo Self test <div> Max6200 g d= 0.01g 0% 100% 0.00 g COUNTING: nRef = 10 pcs isoTST PT1/T1 Start </div>
2. Select the Setup menu	SETUP	<div> SETUP SELECTION App => Application menu Info => Balance/scale parameters Menu => Balance/scale menu Input => User data << App Info Menu Input </div>
3. Select the Scale menu	Menu soft key	<div> SETUP MENU [] 1 Balance/scale functions 2 Interface 6 Print in weighing mode 8 Extra functions 9 Reset menu << App v > </div>
4. Confirm selection of Scale functions	> soft key	<div> MENU BAL.FUNC. [1-] 1 Adapt filter 2 Application filter 3 Stability range 5 Taring 6 Auto zero << App < v > </div>
5. Select CAL/isoTST key function	v soft key repeatedly	<div> MENU BAL.FUNC. [1-] 3 Stability range 5 Taring 6 Auto zero 7 Weight unit 1 9 CAL/isoTST key function << App < ^ v > </div>
and confirm	> soft key	<div> BAL.FUNC. CAL KEY [1- 9-] 1 Ext. cal./adj.: factory-def. wt. 3 Ext. cal./adj.: user-defined wt. o 4 Internal cal./adjustment 10 Key blocked 11 reproTEST << App < ^ v J </div> <p>o = last setting selected</p>
6. Select desired function and confirm (e.g., item 4)	v soft key, repeatedly, if necessary J soft key	<div> BAL.FUNC. CAL KEY [1- 9-] 3 Ext. cal./adj.: user-defined wt. 4 Internal cal./adjustment 10 Key blocked 11 reproTEST o12 Selection mode << App < ^ v J </div>
7. Exit CAL key function	< soft key	<div> MENU BAL.FUNC. [1-] 3 Stability range 5 Taring 6 Auto zero 7 Weight unit 1 9 CAL/isoTST key function << App < ^ v > </div>

8. Select Cal./adjustment sequence ∇ soft key

MENU		BAL.FUNC. [1-]	
5	Taring		
6	Auto zero		
7	Weight unit 1		
9	CAL/isoTST key function		
10	Cal/adjustment sequence		
<< App		<	>

and confirm \rightarrow soft key

BAL.FUNC. CAL/ADJ SEQ [1-10-]	
1	Calibrate, then auto adjust
2	Calibrate, then manual adjust
<< App < ^ v	

○ = last selected setting

9. Select other settings, if desired and confirm (e.g., Calibration with automatic adjustment) \wedge and \downarrow soft keys

BAL.FUNC. CAL/ADJ SEQ [1-10-]	
1	Calibrate, then auto adjust
2	Calibrate, then manual adjust
<< App < ^ v	

10.Exit Cal./adjustment sequence \leftarrow soft key

MENU		BAL.FUNC. [1-]	
5	Taring		
6	Auto zero		
7	Weight unit 1		
9	CAL/isoTST key function		
10	Cal/adjustment sequence		
<< App < ^ v		>	

11.Select isoCAL function ∇ soft key twice

MENU		BAL.FUNC. [1-]	
10	Cal/adjustment sequence		
11	Zero range		
12	Zero range with power on		
13	Tare/zero with power on		
15	isoCAL function		
<< App < ^ v		>	

and confirm \rightarrow soft key

BAL.FUNC. ISOCAL FCT. [1-15-]	
1	Off
2	Only adjustment prompt
3	On and reset application
5	On without resetting app.
<< App < ^ v	

○ = last setting selected

12.Select other settings, if desired and confirm (e.g., turn off isoCAL function) ∇ soft key repeatedly
 \downarrow soft key

BAL.FUNC. ISOCAL FCT. [1-15-]	
1	Off
2	Only adjustment prompt
3	On and reset application
5	On without resetting app.
<< App < ^ v	

13.Save settings and exit the Setup menu SETUP

Max 6200 g		d = 0.01 g	
0%	■ ■ ■ ■ ■ ■ ■ ■ ■ ■	100%	■ ■ ■ ■ ■ ■ ■ ■ ■ ■
0.00 g		Σ	
COUNTING: nRef = 10 pcs			
isoTST	PT1/T1		Start

Internal Calibration/Adjustment

First set either **Internal cal.✓ adjustment** or **Selection mode** (factory setting) in the Setup: Scale menu.

Inside the scale housing is a built-in motorized calibration weight.

The internal calibration/adjustment sequence is as follows:

- Select the calibration function:
Press the **isoTST** soft key twice
- > The internal calibration weight is applied automatically
- > The scale is calibrated
- > If the setting **Calibrate, then auto adjust** is selected in the Scale menu, the scale is now automatically adjusted
- > If the setting **Calibrate, then manual adjust** is selected in the Scale menu, the internal calibration routine is now ended without adjusting the scale (see "Calibration and Adjustment Sequence", next column)
- > The internal calibration weight is removed
- > (ISO/GMP printout: see page 100)

Calibration and Adjustment Sequence

In the Setup menu, you can configure the scale so that:

- calibration is always followed automatically by adjustment **Calibrate, then auto adjust** (factory setting) or
- you have the choice of ending the sequence or starting adjustment after calibration **Calibrate, then manual adjust**

If no deviation is determined in calibration, or the deviation is within the tolerance limits dictated by the degree of accuracy you require, it is not necessary to adjust the scale. In this case, you can end the calibration/adjustment sequence after calibration. There are 2 softkeys active at this point:

- **Start** to start adjustment
- **End** to end the sequence

Selecting the Calibration/ Adjustment Parameter

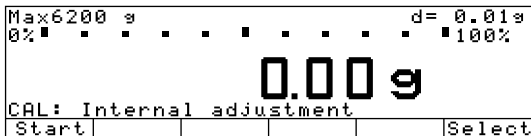
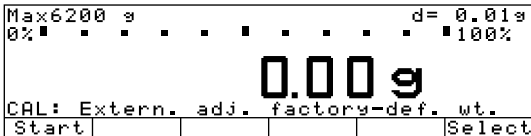

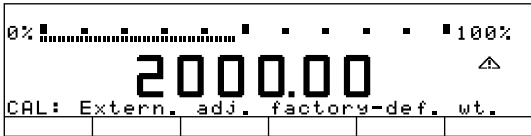

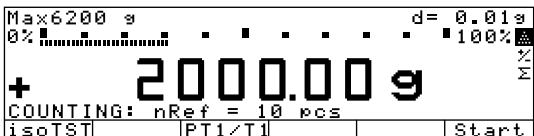
The setting **Selection mode** must be selected in the Setup menu (factory setting).

After pressing the **isoTST** soft key, you can choose from among the following settings by pressing the **Select** soft key:

- External calibration/adjustment with the preset calibration weight:
Ext. cal./adj.: factory-def. wt.
- External calibration/adjustment with a calibration weight determined by the user: **Ext. cal./adj.: user-defined wt.**
- Internal calibration/adjustment
Internal cal./ adjustment
- Reproducibility test
reproTEST
- Start the desired routine:
Press the **isoTST** soft key again

In the selection mode: Perform external calibration followed by automatic adjustment with the factory-set weight

Configuration:
factory settings

Step	Key(s) (or instruction)	Display/Output
1. Select Calibration	isoTST soft key	
2. Select external calibration/adjustment with factory-defined weight (for scales of accuracy class II , only "external adjustment" is possible)	Select soft key repeatedly	
3. Start external calibration/adjustment	Start soft key	
4. Place the weight on the scale (e.g., 2,000.00 g) Minus sign -: Weight too low Plus sign + Weight too high no plus/minus sign: Weight o.k. This is displayed after calibration, for approx. 10 seconds: (on verified scales, the difference between the displayed weight and the true weight (mass) is displayed)	Place weight on scale	 
5. Unload the scale (ISO/GMP printout: see page 100)		

External Calibration/Adjustment* with a User-Defined Calibration Weight

First set either **Ext. cal./adj.:user-defined wt.** or **Selection mode** (factory setting) in the Setup: Scale menu. You can define a weight for calibration/adjustment. External calibration/adjustment must be performed with weights that are traceable to a national standard

and that have error limits which are at least 1/3 of the required tolerance of the display accuracy. The defined weight must equal at least 10% of the maximum scale capacity.

See page 40 for the external calibration/adjustment sequence. For this example, select external calibration/adjustment with a user-defined weight.

The scale has a factory-set weight value (see "Specifications").

To reset a user-defined calibration weight to the original factory setting:

- Enter the factory-defined value manually (see "Specifications")

Define the Calibration Weight

Step	Key(s) (or instruction)	Display/Output
1. Select Setup	SETUP	
2. Select Input	Input soft key	
3. Select calibration/adjustment weight	v soft key 3 times	<p>3000.00 = last setting selected</p>
4. Enter calibration weight (e.g., 4000.00 g) and store	<div> <div>4</div> <div>0</div> <div>0</div> <div>0</div> <div>.</div> <div>0</div> </div> <div>0</div> J soft key	
6. Exit the Setup menu	SETUP	

* for verified scales, only "external adjustment" is possible

isoCAL: Automatic Calibration and Adjustment

First set either **On and reset the application** or **On without resetting the app.** (factory setting) in the Setup: Scale menu.

The "isoCAL" display automatically begins flashing if the ambient temperature changes in relation to the temperature at the time of the last calibration/adjustment, or after a defined time interval has elapsed. The scale is telling you that it wants to adjust itself.

This automatic calibration prompt is triggered when:

- The change in temperature is greater than 10 Kelvin
- The scale status does not correspond to Setup configurations
- No number or letter input is active
- The load has not been changed within the last 2 minutes
- The scale has not been operated within the last 2 minutes
- The load on the scale does not exceed 2% of the maximum capacity

When these requirements are met, **c** is displayed in the measured value line.

If the scale is not operated and the load is not changed, internal calibration and adjustment starts after 15 seconds have elapsed.

In the Setup menu, you can configure the scale so that after calibration and adjustment

- the application program is restarted
On and reset the application
- the application program remains at its previous status
On without resetting the app.

Also in Setup, you can configure the scale so that it displays a calibration prompt, but does not perform the calibration/adjustment functions automatically
Only adjustment prompt

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Determination of the Reproducibility (reproTEST)

Definition

Reproducibility is the ability of the scale to display identical readouts when it is loaded several times with the same weight under constant ambient conditions. The standard deviation for a given number of measurements is used to quantify the reproducibility.

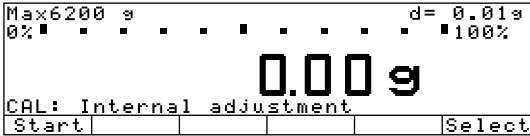
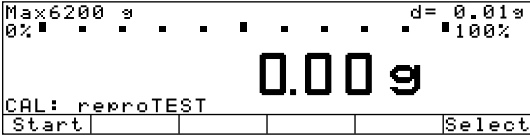
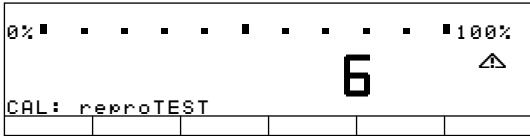
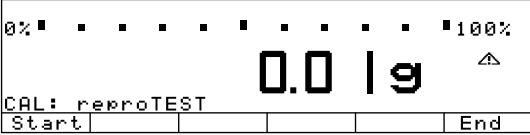
Purpose

The "reproTEST" function automatically determines the reproducibility of results (based on 6 individual measurements). In this way, the scale determines one of the most important quantities in relation to the place of installation. The results are displayed with the scale's accuracy.

Preparation

- Turn on the scale:
Press **100**/[ON/OFF]
- > The Sartorius logo is displayed
- > The scale performs a self-test
- Select reproTEST in the Setup menu: Press **SETUP**
- Select the Scale menu:
Menu soft key
- Select either **reproTEST** or **Selection mode** (factory setting): see "Configuring the Scale"
- Exit the Setup menu:
Press **SETUP**

Check the Reproducibility of the Scale

Step	Key(s) (or instruction)	Display/Output
1. If reproTEST is set: and proceed with step 4. If Selection mode is set:	isoTST soft key isoTST soft key	
2. Select reproTEST	Select soft key	
3. Start reproTEST	Start soft key	
4. Number of measurements is displayed; 6 measurements will now be performed		
The standard deviation is displayed		
5. End reproTEST or restart reproTEST	End soft key Start soft key	

Application Programs

Using Verified Scales as Legal Measuring Instruments in the EU*:

All application programs can be selected on scales used as legal measuring instruments.

Non-metric values are indicated as follows:

- Percent = %
- Piece counting (Counting) = pcs
- Computed value = o

Soft Key Functions

Start Start application program

Weigh. Toggle to basic weighing functions

Toggle between Weight Units R1 R2

Purpose

With this application program you can switch the display of a weight value back and forth between two weight units by pressing a soft key.

You can use this application program in combination with a program chosen from Application 2 (check-weighing, time-controlled functions) and one from Application 3 (totalizing, net-total formulation, statistics).

Available Features

- Toggling the displayed weight
- Setting the display accuracy
- Other features as for the basic weighing function

Factory Settings

Weight unit 1: **Grams**

Display accuracy 1:

All digits

Weight unit 2: **Grams**

Display accuracy 2:

All digits

* including the Signatories of the Agreement on the European Economic Area

Preparation

Scales used as legal measuring instruments: grams and kilograms are the only weight units available

Standard scales: The following weight units are available in both ranges:

Unit	Conversion factor	Display/ Printout	Line for metrological data
Grams	1.000000000000	g	g
Kilograms	0.001000000000	kg	kg
Carats	5.000000000000	ct	ct
Pounds	0.00220462260	lb	lb
Ounces	0.03527396200	oz	oz
Troy ounces	0.03215074700	ozt	ozt
Hong Kong tael	0.02671725000	tlh	tlh
Singapore tael	0.02646063000	tls	tls (up to scale version 00-20-06)
Singapore tael	0.02645544638	tls	tls (from scale version 00-20-07)
Taiwanese tael	0.02666666000	tlt	tlt
Grains	15.43235835000	GN	GN
Pennyweights	0.64301493100	dwt	dwt
Milligrams	1000.000000000000	mg	mg
Parts per pound	1.12876677120	/lb	lb
Chinese tael	0.02645547175	tlc	tlc
Mommes	0.266700000000	mom	M
Austrian carats	5.000000000000	K	K
Tola	0.08573333810	tol	tol
Baht	0.06578947437	bat	bat
Mesghal	0.217000000000	MS	MS

- Turn on the scale: Press /[ON/OFF]
- > Sartorius logo is displayed, self-test is performed
- Select the "Toggle weight units" program in the Setup menu: Press
- Select the Application menu: **APP** soft key
- Select **Application 1:** soft key
- Select **Toggle wt. units:** or soft key (repeatedly)
- Confirm **Toggle wt. units:** soft key
- Select and confirm:
 - **Weight unit 1:** see above
 - **Weight unit 2:** see above
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing (NUM print; S ID),

you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- toggling to the next application (e.g., checkweighing),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See “Calibration/Adjustment” for further instructions

Toggling to the Next Application

- Press **[<01>]/[TOGGLE]**
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press **[SETUP]**
- > See “Configuring the Scale” for further instructions

Turning Off the Scale

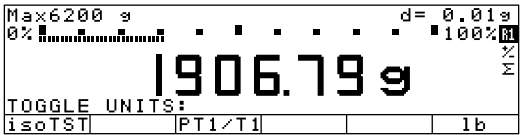
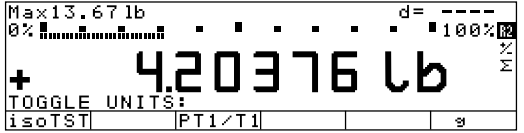
- Press **[100]/[ON/OFF]**
- > The scale shuts off
- > The display goes blank

Practical Example

Toggle the Display From Grams [g] (1st Unit) to Pounds [lb] (2nd Unit)

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Toggle wt. units: Weight unit 2: Pounds/lb

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary (R1: Weight unit 1)	[CF]	
2. Change weight unit to Pounds [lb] (R2: Weight unit 2)	1b soft key	
3. Change weight unit to Grams [g]	g soft key	

Counting ☼

Purpose

With the Counting program you can determine the number of pieces of approximately equal weight.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, net-total formulation, statistics).

Available Features

- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference sample quantity "nRef" and average piece weight "wRef" when you switch on the scale (automatic initialization)
- Reference sample quantity "nRef" entered manually
- Average piece weight "wRef" entered manually
- Storage of the current weight value for the preset reference sample quantity "nRef", to be called up when the Counting program is initialized
- Setting the accuracy when the reference sample weight "wRef" is stored for calculating a piece count
- Optional configuration for having the quantity and sample weight output automatically via the data interface port after initialization or reference sample updating while running the Counting program (print application parameters)
- Toggling between piece count and weight value by pressing the **Count.** or **Weigh.** soft key

Factory Settings

Accuracy when calculating piece weight: **Display accuracy**

Reference sample updating:
Automatic

Soft Key Functions

nRef	Store value input as reference sample quantity
wRef	Store input value as reference sample weight
Update	Reference updating criteria met; reference updating can be performed
Count.	Toggle to the Counting application

Preparation

To calculate a piece count, the average weight of one piece must be known. This average piece weight can be entered into the Counting program in one of three ways:

- Enter the average piece weight using the numeric keys and store it;
- The last reference sample quantity entered is loaded and displayed when you turn on the scale. Place the same number of parts on the scale and initialize the Counting program;
- With automatic initialization parameter on, the scale goes into the “Counting” mode when you turn it on and loads the last average piece weight and corresponding reference sample quantity that were entered or calculated.

Reference Sample Updating

You can have the average piece weight updated during counting (with the piece count displayed) if “AVP update” is set to “manual” or “automatic” in the Setup menu. Manual updating can only be performed when the **Update** soft key is displayed. Reference sample updating must be completed before using an application program from Application 3.

The **Update** soft key is displayed when:

- the scale has reached stability (stability symbol displayed)
- the current piece count is less than double the original piece count
- the current piece count is less than 100
- the internally calculated piece count (e.g., 17.24) differs from the nearest whole number (here: 17) by less than 0.3

Reference updating can be repeated several times with an approximately doubled piece count.

- To perform reference updating: Press the **Update** soft key

- Turn on the scale: Press **[I/O]/[ON/OFF]**

> Sartorius logo is displayed, self-test is performed

- Select the Counting program in the Setup menu: Press **[SETUP]**

- Select the Application menu: Press the **App** soft key

- Select **Application 1: >** soft key

- Select **Counting: ^** or **v** soft key, repeatedly

- Confirm **Counting: >** soft key

- Select and confirm:

- **Average piece weight calculation**
Display accuracy or **+1 decimal place** or **+2 decimal places**

- **Average piece weight updating:**
Off or **Manual** or **Automatic**

see also the “Application Menu (Overview)” in the chapter entitled “Configuring the Scale”

- Save settings and exit the Setup menu: Press **[SETUP]**

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- toggling to the next application (e.g., checkweighing),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See “Calibration/Adjustment” for further instructions

Toggling to the Next Application

- Press **[↔]/[TOGGLE]**
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press **[SETUP]**
- > See “Configuring the Scale” for further instructions

Turning Off the Scale

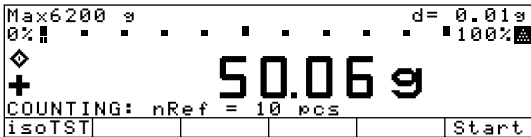
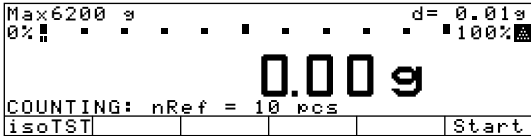
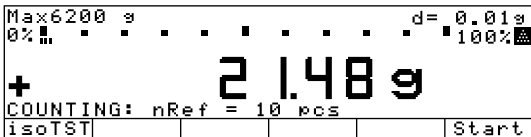
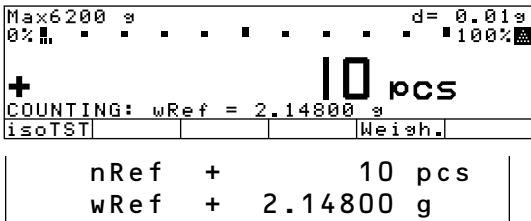
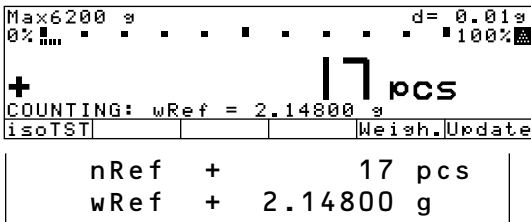
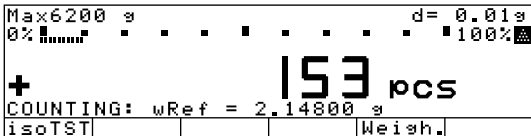

- Press **[I/O]/[ON/OFF]**
- > The scale shuts off
- > The display goes blank

Practical Example

Determining an Unknown Piece Count; Weighing in the Preset Reference Sample Quantity

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Counting: Average piece weight updating: Manual

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	[CF]	
2. Prepare a container for the parts to be counted	Place the empty container on the scale	
3. Tare the scale	[TARE]	
4. Place the reference sample quantity on the scale (example: 10 pcs)	Place the displayed number of parts in the container	
5. Determine the average piece weight (number of decimal places displayed depends on the scale model)	Start soft key	
6. If necessary, increase the number of parts and perform reference sample updating (example: 7 additional pieces)	Place additional parts in the container Update soft key	
7. Weigh uncounted parts	Place parts to be counted in the container	
8. If desired, print total piece count (here: 153 pcs)	[@]/[PRINT]	


Weighing in Percent %

Purpose

This application program allows you to obtain weight readouts in percent which are in proportion to a reference weight.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, net-total formulation, statistics).

Available Features

- Reference percentage “pRef” loaded from long-term memory when you turn on the scale
- Optional scale configuration in Setup for automatically initializing this application and loading the most recent reference percentage “pRef” entered with reference weight “Wxx%” when you turn on the scale
- Reference percentage “nRef” entered manually
- Store the current weight as the reference percentage weight “Wxx%” for initializing the weighing-in-percent application program
- Reference weight “Wxx%” entered manually
- Storage parameter (rounding-off factor) for storing the reference weight “W100%” in percentage calculation can be configured
- Configuration of decimal places displayed with a percentage
- Optional configuration for having the reference weight “Wxx%” and reference percentage automatically output via the data interface port after initialization of the weighing-in-percent program (print application parameters)
- Toggle the display between percentage and weight readout by pressing the **Weigh.** soft key
- Toggle between the weighing-in-percent program and other applications (e.g., checkweighing) by pressing /[TOGGLE]

Factory Settings

Storage parameter:

Display accuracy

Digits displayed with percentage:

2 digits

Soft Key Functions

pRef	Store value input as reference percentage
Wxx%	Store input value as reference sample weight
Perc.	Toggle to the Weighing-in-percent application
Restar (New)	Store next value

Preparation

To calculate a value in percent, the reference percentage must be known. This value can be entered into the weighing-in-percent program in one of three ways:

- The last reference percentage entered is loaded and displayed when you turn on the scale. Place the corresponding weight on the scale and initialize the weighing-in-percent program;
- With automatic initialization switched on, the scale goes into the “weighing in percent” mode when you turn it on and loads the last reference percentage entered as well as the corresponding reference weight;
- Enter the reference weight using the numeric keys and store it (**Wxx%** soft key).

- Turn on the scale: Press **[ON]/[ON/OFF]**
 - > Sartorius logo is displayed, self-test is performed
- Select the Weighing in percent application in the Setup menu: Press **[SETUP]**
- Select the Application menu: **APP** soft key
- Select **Application 1: >** soft key
- Select **Percent weigh.: ^** or **v** soft key repeatedly
- Confirm **Percent weigh.: >** soft key
- Select and confirm:
 - **Weight storage accuracy:**
Display accuracy or
+1 decimal place or
+2 decimal places
 - **Decimal places for readout in pct:**
None or
1 decimal place or
2 decimal places or
3 decimal places or
4 decimal places or
5 decimal places or
6 decimal places

see also the “Application Menu (Overview)” in the chapter entitled “Configuring the Scale”

- Save settings and exit the Setup menu: Press **[SETUP]**

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- toggling to the next application (e.g., checkweighing),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
 - > See “Calibration/Adjustment” for further instructions

Toggling to the Next Application

- Press **[TOG]/[TOGGLE]**
 - > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press **[SETUP]**
 - > See “Configuring the Scale” for further instructions

Turning Off the Scale

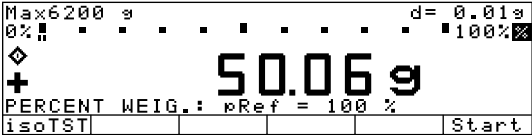
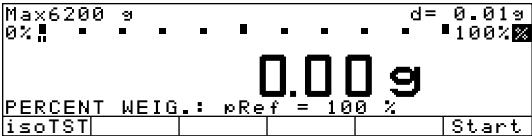
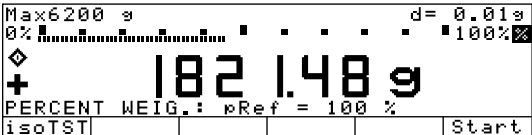
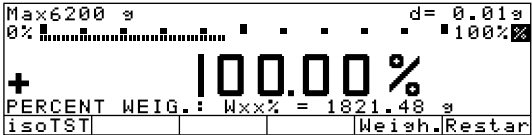
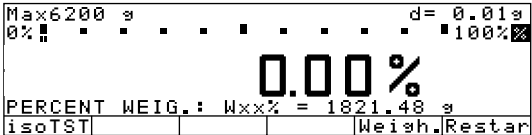
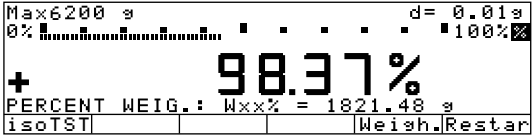
- Press **[ON]/[ON/OFF]**
 - > The scale shuts off
 - > The display goes blank

Examples

Practical Example P1: Weighing in Percent with Reference Weight Taken From Weight on Scale

Settings (changes in the factory settings required for this example):

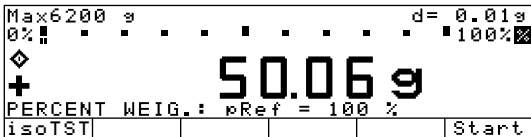
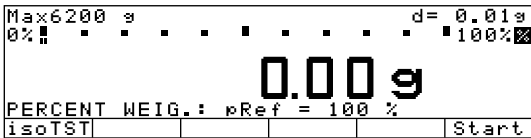
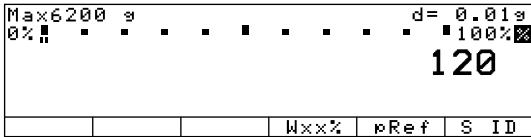
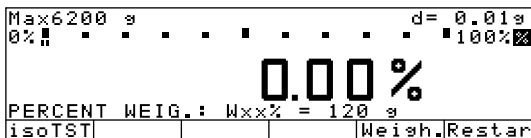
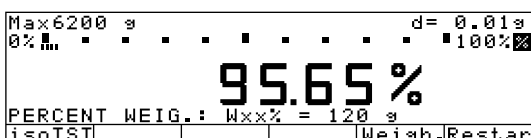
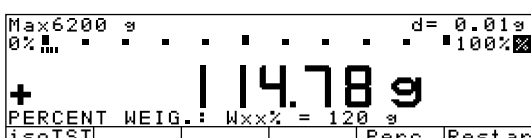
Setup: App: Application 1: Weighing in percent

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	[CF]	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	[TARE]	
4. Place the reference weight on the scale (here: 1821.48 g = 100%)	Place weight equal to reference weight in the container	
5. Initialize the scale	Start soft key	 <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>pRef + 100 %</p> <p>Wxx% + 1821.48 g</p> </div>
6. Unload the scale	Remove reference sample from the container	
7. Determine the percentage of an unknown weight	Place sample to be measured in the container	
8. If desired, print percentage (here: 98.37%)	[☒]/[PRINT]	<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Prc + 98.37 %</p> </div>

Practical Example P2: Weighing in Percent with Reference Weight Entered Using the Numeric Keys

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Weighing in percent

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	[CF]	
2. Prepare a container for the parts	Place the empty container on the scale	
3. Tare the scale	[TARE]	
4. Enter the reference weight using the numeric keys (here: 120 g)	[1] [2] [0]	
5. Store the reference weight	Wxx% soft key	
6. Determine the percentage of an unknown weight	Place sample to be measured in the container (in the case: 114.78 g)	
7. Toggle to weight display	Weigh. soft key	


Animal Weighing

Purpose

Use this program to determine the weights of unstable samples (e.g., live animals) or to determine weights under unstable ambient conditions. In this program, the scale calculates the weight as the average of a defined number of individual weighing operations. These weighing operations are also known as "subweighing operations."

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, net-total formulation, statistics).

Available Features

- Animal weighing started manually or automatically
- Optional scale configuration in the Setup menu for automatically initializing this application when you turn on the scale
- Minimum load threshold (100 display increments) for automatic start of animal weighing
- Start range: Automatic start of animal weighing operation when three successive subweights lie within a user-defined tolerance range (calm = 2%, normal = 5%, active = 10%)
- Number of weighing operations for calculation of an average (**mDef**) can be set before the beginning of each animal weighing operation
- The factor for calculation of the result can be set before the beginning of each animal weighing operation
- The number of subweighs remaining to be performed is indicated in the text display during weighing
- Arithmetic average displayed as a result in the pre-set weight unit (identified by the  symbol).
- Optional multiplication of the arithmetic average by a user-defined factor **Mu1**.
A circle "o" is displayed as weight unit and **Mu1 = xxx** is shown in the text line
- Toggling between the weight and the calculated value by pressing the **xNet** soft key and the **xRes** soft key
- Automatic output of results via the interface port:
 - Number of weighing operations **mDef**
 - Multiplication factor **Mu1**

- Automatic output of results (printout) via the interface port:
 - Weighing result **xNet**
 - Calculated result **xRes**
- The unload threshold hold is equal to one-half the minimum scale capacity
- Return to weighing mode by unloading the scale; i.e., when the load is below the unload threshold

Factory Settings

Animal activity: **Normal**

Start: **Automatic**




Decimal places in result display:
2 decimal places

Printout:
Average weight only

Soft Key Functions

- | | |
|---------------|--|
| Restar | Automatic start: <ul style="list-style-type: none"> - Unload scale and weigh next animal, if desired - Press key to start next subweigh Manual start:
Start next subweigh |
| mDef | Store user-input number of subweighs for averaging |
| Mu1 | Store user-input factor as multiplication factor for calculated the arithmetic mean |
| xNet | Toggle to the Animal weighing application |
| xRes | Toggle to the calculated animal weighing result |

Preparation

- Turn on the scale: Press /[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
 - Select the Animal weighing application in the Setup menu: Press 
 - Select the Application menu: **APP** soft key
 - Select **Application 1: >** soft key
 - Select **Animal weigh.:** **▲** or **▼** soft key repeatedly
 - Confirm **Animal weigh.:** **>** soft key
 - Select and confirm:
 - **Animal activity:**
Calm or
Normal or
Active
 - **Start:**
Manual mode or
Automatic mode
 - **Decimal places in result display:**
None or
1 decimal place or
2 decimal places or
3 decimal places or
4 decimal places or
5 decimal places or
6 decimal places
 - **Printout:**
None or
Average weight only or
Average and calculated value
- see also the “Application Menu (Overview)” in the chapter entitled “Configuring the Scale”
- Save settings and exit the Setup menu: Press 

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- toggling to the next application (e.g., checkweighing),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
 - > See “Calibration/Adjustment” for further instructions

Toggling to the Next Application

- Press /[TOGGLE]
 - > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
 - > See “Configuring the Scale” for further instructions

Turning Off the Scale

- Press /[ON/OFF]
 - > The scale shuts off
 - > The display goes blank

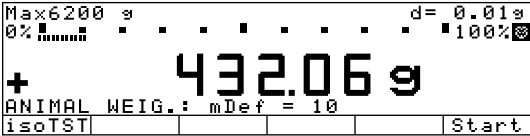
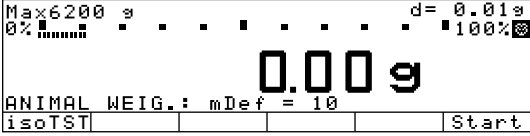
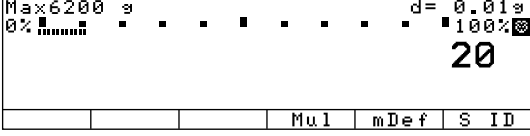
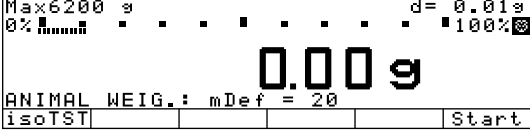
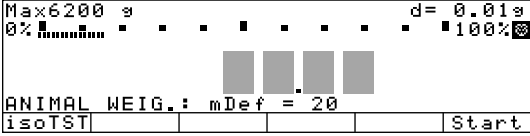
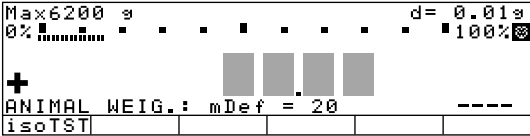
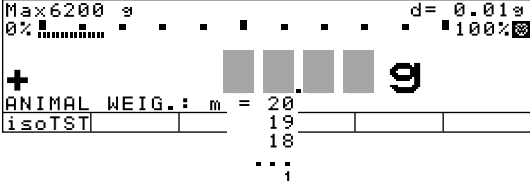
Practical Example

Determining Animal Weight With Automatic Start of 20 Subweighing Operations for Averaging; Automatic Printout of the Number of Subweighing Operations and of the Animal Weight

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Animal weighing: Animal activity: Active

Setup: App: Application 1: Animal weighing: Printout: Average and calculated values

Step	Key (or instruction)	Display/Output
1. Delete previous setting if necessary	CF	
2. Prepare a container (cage)	Place empty cage on the scale	
3. Tare the scale	TARE	
4. Enter number of subweighing operations for averaging	2 0	
5. Save number	mDef soft key	
6. Weigh the first animal	Place 1st animal in cage	<p>weight value fluctuates due to animal activity</p> 
7. Start automatic animal weighing	Start soft key	
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for an "active" animal	When this criterion is met, the subweighing series begins	

Step	Key (or instruction)	Display/Output								
After 20 subweighing operations the arithmetic average (xNet) is display (mDef : no. of subweighs Mul : calculation factor xNet : arithm. average, net value)		<div><div>Max6200 g d= 0.01g 0% 100% 69.72 g + ANIMAL WEIG.: xNet isoTST xRes Restar</div><div><table><tr><td>mDef</td><td>20</td></tr><tr><td>Mul</td><td>1</td></tr><tr><td>xNet</td><td>+ 69.72 g</td></tr><tr><td>xRes</td><td>+ 69.72 o</td></tr></table></div></div>	mDef	20	Mul	1	xNet	+ 69.72 g	xRes	+ 69.72 o
mDef	20									
Mul	1									
xNet	+ 69.72 g									
xRes	+ 69.72 o									
8. Unload the scale	Remove animal from cage	<div><div>Max6200 g d= 0.01g 0% 100% 0.00 g ANIMAL WEIG.: mDef = 20 Auto isoTST</div></div>								
9. If desired, weigh next animal	Place animal in cage	<div><div>Max6200 g d= 0.01g 0% 100% ANIMAL WEIG.: mDef = 20 ---- isoTST</div></div>								
Next weighing series begins automatically		<div><div>Max6200 g d= 0.01g 0% 100% ANIMAL WEIG.: m = 20 isoTST 19 18 ... 1</div></div>								




Calculation

Purpose

With this application program you can calculate a weight value using an algebraic equation. This can be used, for example, to determine the gsm weight (grams per square meter) of paper.

You can use this application program in combination with a program chosen from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- You can store an equation and configure the Setup menu to initialize this program automatically with the stored equation
- The  symbol is displayed to indicate a calculated value. The equation used is displayed in the text line
- If no equation was entered, the weight value is displayed
- Toggle between the weight readout, equation input and display of the calculated result by pressing the corresponding soft keys (or press  to toggle between weight and calculated value)
- There are four operators (+, -, *, /) and one factor (weight value) available when you enter an equation
- Max. equation length: 28 characters
- Pressing  will delete either the equation or the last character entered, depending on the configuration in the Setup menu (see "Configuring the Scale")
- The calculated result is displayed with the number of decimal places configured in the Setup menu. Not all decimal places are displayed if the result is longer than the display allows. If there are more digits before the decimal point than the display can show, an error message is displayed.
- The equation is stored in non-volatile memory




Factory Settings

Decimal places in calculated result:
2 decimal places

Soft Key Functions

Equat.	Toggle to equation
+	Enter an addition operator in the equation
-	Enter a subtraction operator in the equation
*	Enter a multiplication operator in the equation
/	Enter a division operator in the equation
Weight	Enter a weight value in the equation

Preparation

- Turn on the scale: Press 
 - > Sartorius logo is displayed, self-test is performed
 - Select the Calculation application program in the Setup menu: Press 
 - Select the Application menu: **APP** soft key
 - Select **Application 1: >** soft key
 - Select **Calculation: ^** or **v** soft key repeatedly
 - Confirm **Calculation: >** soft key
 - Select and confirm:
 - **Decimal places in calculated result:**
None or
1 decimal place or
2 decimal places or
3 decimal places or
4 decimal places or
5 decimal places or
6 decimal places
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press 

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input),
- toggling to the next application (e.g., checkweighing),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions


Toggling to the Next Application

- Press /[TOGGLE]
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
- > The scale shuts off
- > The display goes blank

Practical Example

Calculate the gsm weight of paper: determine the gsm of a sheet of A4 paper with the dimensions $0.210 \text{ m} \times 0.297 \text{ m} = 0.06237 \text{ m}^2$. The gsm weight is a product of the division of the weight by the surface area.

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Calculation

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]	
2. Delete previous setting if necessary		
3. Tare the scale		
4. Select equation input	Equat. soft key	
5. Enter weight value Enter division sign Enter the surface area of a sheet of A4 paper	Weight soft key * soft key 	
6. Turn on the calculated result display	Start soft key	
7. Determine the gsm weight	Place A4 sheet on the scale	

Over/Under Checkweighing

Purpose

This program is used to check whether a sample corresponds to a pre-set target value or is within a specific tolerance range. In addition to the display in the measured value line, the results are shown on the bar graph and can also be routed through the interface port via control lines for further electronic processing.

You can use this application program in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Optional configuration in the Setup menu for long-term storage of target value and tolerance limits
- Optional scale configuration in Setup for automatically initializing this application and loading the values stored in long term memory for the target value and the upper and lower tolerance limits when you turn on the scale
- You can perform checkweighing
 - without entering a target value, but only upper and lower tolerance limits;
 - as differential checkweighing;
 - with symmetric or asymmetric limits which can be entered as percentages
- Enter target value and limits by placing a load on the scale or using the numeric keys
- Control in entering target and tolerance values, so that the upper limit \geq the target \geq the lower limit ≥ 1 display increment
- Accuracy of a weight readout or keyboard input as target/tolerance values corresponds to the display accuracy
- Optional scale configuration in the Setup menu for automatic output to the interface port (print application parameters) of target value and tolerance limits when initialization is completed
- Control range for the scale's data output port lines is 30% to 170% of the target value
- Optional configuration in the Setup menu for activation of control lines dependent on weight value (weight value within control range, stability reached)
- Toggling the display between weight readout and control (checkweighing) display by pressing the corresponding soft key. If the weight value exceeds tolerances, the measured value line shows the weight while the control display shows "LL" for "too low" or "HH" for "too high."

- Press the **Show** soft key to display target value and tolerance limits in the text line after initializing the application.
- Weight value in bar graph displayed in relation to upper and lower limits and target value.
- "OK" value counter displayed in the text line (e.g., **n = 4**). This counter shows the number of measured values that lie within the tolerance range.
- Optional automatic printout of weight value when it is within the control range at stability

After an automatic printout, the scale is blocked. Before you can generate the next printout, you must unblock the scale by unloading it (weight must be under 30% of the target) or by placing a load on the scale (bringing the weight up to at least 170% of the target).
- Press **[CF]** to delete the initialization parameters and end the Checkweighing program

Factory Settings

Activation of port lines: **Within checkweighing range**

Type of checkweighing input:

Target, minimum, maximum weight

Weight display mode:
Absolute value

Automatic printout of OK values: **No**

Soft Key Functions

Param.	Begin input of target and tolerance values
Show	Display target and tolerance values in turn during checkweighing
LLHH	Toggle to control display ("LL" for too light and "HH" for too heavy)
Diff.	Display difference between current value and target
Net	Display net weight

Preparation

The checkweighing program often requires a target value for comparison to the current value. This target has a tolerance range, which is defined by absolute weight values. The tolerance range is defined as either an absolute value or a percentage: upper and lower limits. Percentage values can be symmetric or asymmetric to the target value. These values can be entered either by storing weights on the scale or via key input.

There are four control lines, called data output port lines, which are activated as follows: (see also the diagram at the right):

- lighter
- equal
- heavier
- set

The control range spans 30% to 170% of the target value. You can configure this parameter in the Setup menu (App: Application 2: Checkweighing: Activation of port lines:) to select whether the control lines are:

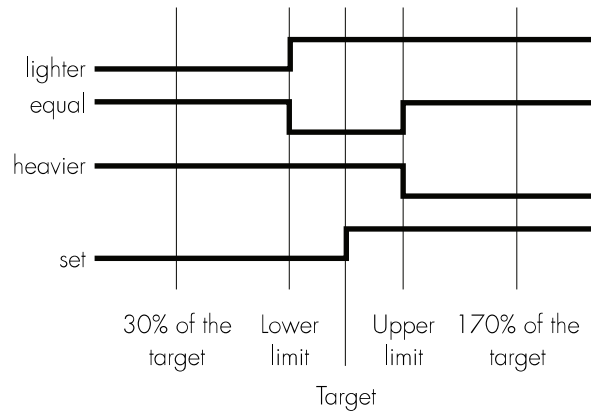
- activated within the control range
- always on
- activated at stability within the control range
- activated at stability

This makes it possible, for example, to connect a simple indicator for the weighing results (e.g., three different colors, one each for the weighing results: too light, O.K., too heavy).

Response of Control Lines During Checkweighing

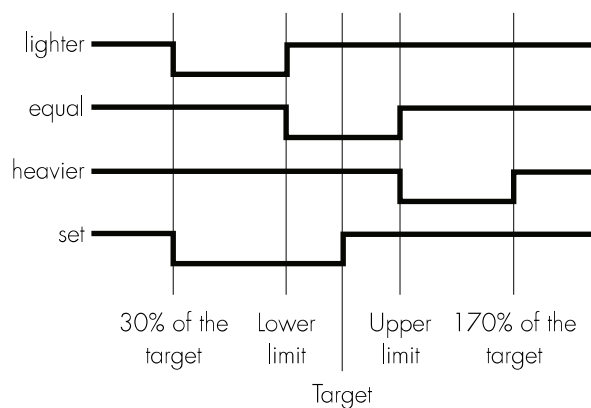
Configurations:

- always on
- activated at stability






Configurations:

- activated within control range
- activated at stability within control range



Preparation

- Turn on the scale: Press 
 - > Sartorius logo is displayed, self-test is performed
 - Select the Checkweighing application in the Setup menu: Press 
 - Select the Application menu: **APP** soft key
 - Select **Application 2**: Press the **▼** soft key and then the **➤** soft key
 - Select **Checkweighing**: **▲** or **▼** soft key repeatedly
 - Confirm **Checkweighing**: **➤** soft key
 - Select and confirm:
 - **Activation of port lines**:
Within checkweighing range or
Always on or
Stability and checkweighing range or
At stability or
Stability + checkweigh range → on
 - **Type of checkweighing input**:
Target, minimum, maximum weight or
Minimum, maximum weight or
Target, minimum in %, maximum in %
 - **Weight display mode**:
Absolute value or
Difference from the target
 - **Automatic printout of OK values**:
Yes or
No
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press 

Additional Functions

In addition to the functions for:

- alphanumeric input, (not during initialization),
- taring (not during alphanumeric input)
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input or initialization),
- toggling to another application (e.g., counting),
- setup, (not during initialization),
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions


Toggling to Another Application

- Press /[TOGGLE]
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
- > The scale shuts off
- > The display goes blank

Practical Example

Checkweighing samples of 170 g, with an allowable tolerance of -5 g and +10 g. Printout of upper and lower tolerance limits. Weighed values are printed out automatically when stability is reached and weight value is within the control range.

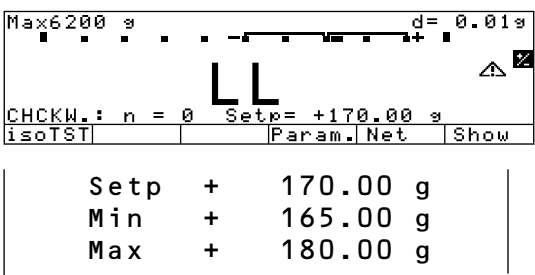
Settings (changes in the factory settings required for this example):

Setup: App: Application 2: Checkweighing: Automatic printout of OK values: Yes

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]	
2. Delete previous setting if necessary		
3. Prepare a container for the samples	Place empty container on the scale	
4. Tare the scale		
5. Enter initialization values	Param. soft key	
6. Enter target value via the scale (here: 170 g)	Place ideal sample in container	
7. Store target value and unload scale	soft key Remove ideal sample from scale	
8. Enter value for lower limit (170 g - 5 g) and store	 soft key	

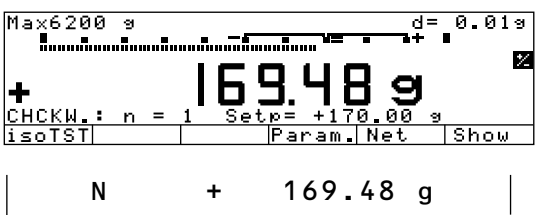
9. Enter value for upper limit
(170 g + 10 g) and store

1 8 0
↓ soft key

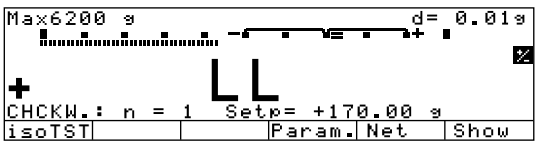


10. Weigh sample
(in this case 169.48 g)

Place sample in container

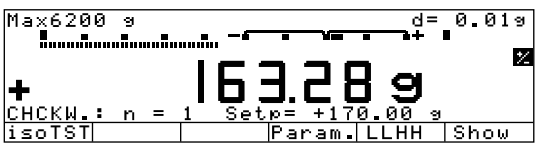


If the weight value had been too low, the display would have shown the following:



11. In this case, switch to net value display (here: 163.28 g)

Net soft key



12. Weigh next sample (if any)

Place sample in container

Time-Controlled Functions

Purpose

With this application program, you can configure the scale to perform certain functions (e.g., automatic printout of values, store value in totalization memory) at a given time or after a set interval.

You can use this application program in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 3 (e.g., totalizing, formulation).

Available Features

- Time-controlled triggering of scale functions:
 - one time only, at a given time
(**Setting=** is displayed in the text line)
 - repeatedly, at given intervals
(**Interval=** is displayed in the text line before the function is started, and **Repeat =** is displayed after the function is started)
- Functions that can be time-controlled include:
 - Acoustic signal
 - Lock in readout
 - Automatic printout of values
 - Store values for totalizing, formulation or statistics
- Print time in addition to weight value
- Store value independent of stability
- Tare the scale after printout of weight values
- Press the corresponding soft key to cancel time-controlled functions




Factory Settings

Function after time interval:
Automatic printout of values
Automatic function restart: **On**
Storage mode:
Without stability
Print then tare: **On**

Soft Key Functions

Stop	Stop the application
Quit	Confirm performed function (e.g., "Lock in readout" or "Beep")
Interv	Store input interval for time-controlled functions
Set.	Store input time for one-time performance of function

Preparation

- Turn on the scale: Press /[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
 - Select the "Time-controlled functions" application in the Setup menu: Press 
 - Select the Application menu: **APP** soft key
 - Select **Application 2**: Press the **▼** soft key and then the **➤** soft key
 - Select **Time-controlled functions**: **▲** or **▼** soft key
 - Confirm **Time-controlled functions**: **➤** soft key
 - Select and confirm:
 - **Function after time interval**:
Beep or
Lock in readout or
Automatic printout of values or
Store value in applicat. 3 memory
 - **Automatic function restart**:
On or
Off
 - **Storage mode**:
Without stability or
After stability or
After higher stability
 - **Print then tare**:
Off or
On
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press 

Print Net Values without Printout of Time

Configuration settings:

Setup: App: Basic settings: Printout configuration: Auto. at init.: Off

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input or initialization),
- toggling to another application (e.g., counting),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
 - > See "Calibration/Adjustment" for further instructions


Toggling to Another Application

- Press /[TOGGLE]
 - > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
 - > The scale shuts off
 - > The display goes blank

Practical Example

Document the amount of evaporation of a sample with defined surface, temperature and air pressure at preset intervals of 1 minute, 30 seconds.

Settings (changes in the factory settings required for this example):

Setup: App: Application 2: Time-controlled functions

Setup: Menu: Scale functions: Taring: Without stability

Setup: Menu: Print in weighing mode: Manual/auto print mode: Manual without stability

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]	
2. Delete stored values if necessary		
3. Place container with sample on the scale and tare		
4. Enter time interval: 1 minute, 30 seconds		
5. Store time interval	Interval soft key	
6. Begin documentation (Time remaining until the next printout is displayed in the text line)	Start soft key	
Printout of evaporation amount every 1½ minutes		<div> Time: 15:19:50 N - 0.37 g Time: 15:21:20 N - 0.33 g Time: 15:22:50 N - 0.30 g Time: 15:24:20 N - 0.40 g </div>
7. Stop the documentation procedure	Stop soft key	

Totalizing Σ

Purpose

This application program acts as a cumulative memory function.

You can use this application program in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 2 (check-weighing, time-controlled functions).

Available Features

- Totalization of weight values and calculated values
- Optional configuration in the Setup menu for simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (check-weighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Simultaneous display in the text line of transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value is stored in the totalization memory
- Manual input of the number of individual weighing operations (enter on numeric keys and press **nDef**). Result printed and memory cleared when the number entered has been reached.
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generate a printout of the result

- Optional configuration in the Setup menu for stability-dependent storage of the measured value: **Stability range**
- Optional automatic storage of measured values
Storage of measured value is indicated by $\rightarrow\leftarrow$.
 $\rightarrow\leftarrow$ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M-** soft key to delete the last value added to the totalization memory. The transaction counter value is reduced by one and a printout is generated.
- Press the **MR** soft key for information about number of transactions and the current total. By configuring the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation (see the example)
- In the Info window you can choose which value is displayed in the text line during weighing
- Printout of the end result independent of which program is configured for Application 1 or Application 2. Configure the Setup menu to define which values are included on the printout (Printout of individual components)
- Press **MR** for a printout of an intermediate evaluation after each addition or a final evaluation
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing **[CF]** or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings

Automatic storage: **Off**

Minimum load for automatic storage: **10 digits**

Source of data for auto storage: **Application 1**

Evaluated values: **Net**

Evaluation mode, MR key function: **Intermediate evaluation, print**

M+/M- function, then tare: **Off**

Printout of individual components: **On**

Stability range: **1-3-4
2 increments**

Tare after individual printout: **No**

Soft Key Functions

- | | |
|-------------|--|
| M+ | Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key. |
| M- | Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key. |
| MR | Print or display an intermediate or final evaluation |
| nDef | Store the input number of components |

Preparation

- Turn on the scale: Press /[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
- Select the Totalizing application program in the Setup menu: Press
- Select the Application menu: **APP** soft key
- Select **Application 3**: Press the **▼** soft key twice and then press **➤**
- Select **Totalizing**: **▲** or **▼** soft key
- Confirm **Totalizing**: **➤** soft key
- Select and confirm:
 - **Automatic storage**:
 Off or
 On, first value at stability or
 On, last value at stability or
 On, value bet. 70-130% at stabil.
 - **Minimum load for automatic storage**:
 None or
 10 digits or
 20 digits or
 50 digits or
 100 digits or
 200 digits or
 500 digits or
 1000 digits
 - **Source of data for auto storage**:
 Application 1 or
 Application 2
 - **Evaluated values**:
 Net or
 Calculated or
 Net + calculated
 - **Evaluation mode, MR function**:
 Intermediate evaluation, print or
 Final evaluation, print or
 Intermediate eval., display+print or
 Final evaluation, display+print
 - **M+/M- function, then tare**:
 Off or
 On
 - **Printout of individual components**:
 No or
 Yes

see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,

you can also access the following functions from this application:

- calibration (not during alphanumeric input or initialization),
- toggling to another application (e.g., counting),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions

Toggling to Another Application

- Press /[TOGGLE]
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
- > The scale shuts off
- > The display goes blank

Practical Example

Totalize counted pieces

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Counting

Setup: App: Application 3: Totalizing: Evaluated values: Net + calculated

Setup: App: Application 3: Totalizing: Evaluation mode, MR function: Final evaluation, display + print

Step	Key (or instruction)	Display/Output				
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]					
2. Delete old totalization data, if necessary						
3. Tare the scale						
4. Toggle to Application 1: Counting	/[TOGGLE]					
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale					
6. Initialize the Counting application	Start soft key	<div><table><tr><td>nRef</td><td>10 pcs</td></tr><tr><td>wRef</td><td>35.28900 g</td></tr></table></div>	nRef	10 pcs	wRef	35.28900 g
nRef	10 pcs					
wRef	35.28900 g					
7. Remove the reference sample quantity and toggle to Totalizing	Unload the scale /[TOGGLE]					
8. Place a number of parts on the scale (here: 50 pcs)	Place parts on the scale					

9. Store piece count

M+ soft key

Max6200 g		d= 0.01g	
0%		100%	
+ 50 pcs		MR M- M+	
TOTAL: n=1 Σ tot= + 100 pcs			
isoTST			

16.01.97	11:06:54
n +	1
N +	1764.45 g
Qnt +	50 pcs

10. Unload the scale

Remove parts from the scale

11. Place another load of parts on the scale (e.g., 60 pcs)

Place parts on the scale

Max6200 g		d= 0.01g	
0%		100%	
+ 60 pcs		MR M- M+	
TOTAL: n=1 Σ tot= + 110 pcs			
isoTST			

12. Add piece count to stored total

M+ soft key

Max6200 g		d= 0.01g	
0%		100%	
+ 60 pcs		MR M- M+	
TOTAL: n=2 Σ tot= + 170 pcs			
isoTST			

n +	2
N +	2117.34 g
Qnt +	60 pcs

13. Repeat steps 10 and 11 as required

14. Display final evaluation ("Info" window)
(here: 5 weighing operations;
total weight: 8751.67 g;
total quantity: 248)
The indicates which value is displayed in the text line; you can change this selection

MR soft key

TOTAL:			
oNet: n	=	5	
Net: Σ	=	+ 8751.67 g	
Calculated: n	=	5	
Calculated: Σ	=	+ 248 pcs	
<<			v ↓

15. Print final evaluation

/[PRINT]

n	5
Total +	8751.67 g
Total +	248 pcs
16.01.97	11:16:39

Formulation

Purpose

With this application program you can add weight values and calculated values to a totalization memory as components of a formula.

You can use this application program in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 2 (check-weighing, time-controlled functions).

Available Features

- Totalization of weight values and calculated values
- Simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (check-weighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Transaction counter and current total displayed in the text line
- Scale tared after a value is stored
- Manual input of the number of individual weighing operations (enter on the numeric and press **nDef**). Result printed and memory cleared when number entered has been reached
- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generating a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: **Stability range**

- Optional automatic storage of measured values
Storage of measured value is indicated by **→←**.
→← indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M-** soft key to delete the last value added to the totalization memory.
The transaction counter value is reduced by one and a printout is generated.
- Printout of an evaluation of results, depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define the information included on this printout.
- Press **MR** for a printout of an intermediate evaluation after each addition or a final evaluation
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing **[CF]** or after an evaluation is printed out
- Totalization data and transaction counter data are stored in non-volatile memory
- Continue formulation after turning the scale off and back on

Factory Settings

Automatic storage: **Off**

Minimum load for automatic storage:
10 digits

Source of data for auto storage:
Application 1

Evaluated values: **Net**

Evaluation mode, MR key function:
**Intermediate
evaluation, print**

Printout of individual components:
On



Stability range:
1-3-4 2 increments

Tare after individual printout: **No**


Soft Key Functions

M+	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
M-	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components

Preparation

- Turn on the scale: Press /[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
- Select the Formulation application program in the Setup menu: Press 
- Select the Application menu: **APP** soft key
- Select **Application 3**: Press the **▼** soft key twice and then press **➤**
- Select **Formulation**: **▲** or **▼** soft key
- Confirm **Formulation**: **➤** soft key
- Select and confirm:
 - **Automatic storage**:
Off or
On, first value at stability.
 - **Minimum load for automatic storage**:
None or
10 digits or
20 digits or
50 digits or
100 digits or
200 digits or
500 digits or
1000 digits
 - **Source of data for auto storage**:
Application 1 or
Application 2
 - **Evaluated values**:
Net or
Calculated or
Net + calculated
 - **Evaluation mode, MR function**:
Intermediate eval., print or
Final evaluation, print
 - **Printout of individual components**:
No or
Yes

see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"

- Save settings and exit the Setup menu: Press 

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input or initialization),
- toggling to another application (e.g., counting),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions


Toggling to Another Application

- Press /[TOGGLE]
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
- > The scale shuts off
- > The display goes blank

Practical Example

Weighing in Components

Settings (changes in the factory settings required for this example):

Setup: App: Application 3: Formulation: Automatic storage: On, first value at stability

Setup: App: Application 3: Formulation: Minimum load for automatic storage: 100 digits

Setup: App: Application 3: Formulation: Evaluation mode, MR function: Final evaluation, print

Step	Key (or instruction)	Display/Output
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]	
2. Delete old formulation data, if necessary		
3. Tare the scale		
4. Place the empty container on the scale (here: 180.59 g)	Place load on the scale	
5. Tare the scale		
6. Weigh in the first component (here: 42.88 g)	Place components in container	
7. Store components in the formulation memory Scale is tared automatically	M+ soft key	
Components are printed out automatically		

8. Weigh in the next component
(here: 50.80 g)

Place components
in container

Comp2 + 50.80 g

Components are stored in the
totalization memory at stability
and printed out

Scale is tared automatically

Max 6200 g	d = 0.01 g
0% 100%	100%
0.00 g	N2
FORM.: n=2 Σ = +93.68 g	++
isoTST	MR M- M+

9. Repeat step 7 as required

10. Print final evaluation
(here: with total weight of all
components: 212.43 g)

MR soft key

```

-----
n                2
Tot cp+        212.43 g
16.01.97      14:10:33
-----

```

11. Delete old formulation data,
if necessary

CF

Statistics

Purpose

With this application program you can have weight values and calculated values totalized and statistically evaluated.

The values determined for the evaluation are:

- average
- standard deviation
- variation coefficient
- sum of all values
- lowest value (minimum)
- highest value (maximum)
- difference between the minimum and the maximum

You can use the statistics application in combination with a program chosen from Application 1 (e.g., counting, weighing in percent) and one from Application 2 (checkweighing, time-controlled functions).

Available Features

- Totalization of weight values and calculated values
- Simultaneous storage of net and calculated values
- Optional configuration in the Setup menu for loading weight values and calculated values either from Application 1 (e.g., counting, weighing in percent) or from Application 2 (checkweighing, time-controlled functions)
- Totalization memory for up to 65535 values
- Simultaneous display in the text line of transaction counter and, e.g., the current total
- Optional configuration in the Setup menu for having the scale tare automatically after a value is stored in the totalization memory
- Manual input of the number of individual weighing operations (enter on numeric keys and press **nDef**). Result printed and memory cleared when number entered has been reached.

- Optional configuration in the Setup menu to add the current weight, with display accuracy, to the current total by pressing the **M+** soft key and generate a printout of the result
- Optional configuration in the Setup menu for stability-dependent storage of the measured value: **Stability range**
- Optional automatic storage of measured values
Storage of measured value is indicated by **↔**.
↔ indicates that you can place a load on the scale.
- Minimum load threshold for automatic storage
- Press the **M-** soft key to delete the last value added to the totalization memory. The transaction counter value is reduced by one and a printout is generated.
- Press the **MR** soft key for information about number of transactions and the current total. By configuring the Setup menu, you can define whether the information is displayed and printed, or only printed, and whether the information comprises an intermediate or final evaluation (see the example)
- In the Info window you can choose which value is displayed in the text line during weighing
- Printout of the end result depending on the Application 1 or Application 2 parameters. Configure the Setup menu to define which values are included on the printout (Printout of individual components)
- Press **MR** for a printout of an intermediate evaluation after each addition or a final evaluation
- Optional configuration in the Setup menu to clear the totalization memory and reset the transaction counter by pressing **CF** or after an evaluation is printed out

- Totalization data and transaction counter data are stored in non-volatile memory
- Continue totalization after turning the scale off and back on

Factory Settings

Automatic storage: **Off**

Minimum load for automatic storage:
10 digits

Source of data for auto storage:
Application 1

Evaluated values: **Net**

Evaluation mode, MR key function:
Intermediate evaluation, print

M+/M- function, then tare: **Off**

Printout of individual components:
Off




Stability range:
1-3-4 2 increments

Tare after individual printout: **No**

Soft Key Functions

M+	Add weight values or application values to the total in the totalization memory. The component or transaction counter value increases by one each time you press this key.
M-	Delete the last value added to memory. The transaction counter value decreases by 1. You cannot delete previous values by repeatedly pressing this key.
MR	Print or display an intermediate or final evaluation
nDef	Store the input number of components

Preparation

- Turn on the scale: Press 
- > Sartorius logo is displayed, self-test is performed
- Select the Statistics application program in the Setup menu: Press 
- Select the Application menu: **APP** soft key
- Select **Application 3**: Press the **▼** soft key twice and then press **➤**
- Select **Statistics**: **▲** or **▼** soft key
- Confirm **Statistics**: **➤** soft key
- Select and confirm:
 - **Automatic storage**:
 Off or
 On, first value at stability or
 On, last value at stability or
 On, value bet. 70-130% at stabil.
 - **Minimum load for automatic storage**:
 None or
 10 digits or
 20 digits or
 50 digits or
 100 digits or
 200 digits or
 500 digits or
 1000 digits
 - **Source of data for auto storage**:
 Application 1 or
 Application 2
 - **Evaluated values**:
 Net or
 Calculated or
 Net + calculated
 - **Evaluation mode, MR function**:
 Intermediate evaluation, print or
 Final evaluation, print or
 Intermediate eval., display+print or
 Final evaluation, display+print
 - **M+/-M- function, then tare**:
 Off or
 On
 - **Printout of individual components**:
 No or
 Yes
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press 

Additional Functions

In addition to the functions for:

- alphanumeric input,
- taring (not during alphanumeric input),
- printing,


you can also access the following functions from this application:

- calibration (not during alphanumeric input or initialization),
- toggling to another application (e.g., counting),
- setup,
- turning off the scale.

Calibration/Adjustment

- Press the **isoTST** soft key
- > See "Calibration/Adjustment" for further instructions

Toggling to Another Application

- Press /[TOGGLE]
- > See the section on the corresponding application program for further instructions

Setup (setting parameters)

- Press 
- > See "Configuring the Scale" for further instructions

Turning Off the Scale

- Press /[ON/OFF]
- > The scale shuts off
- > The display goes blank

Practical Example

Totalize counted pieces and print out statistics

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Counting: Average piece weight updating: Manual

Setup: App: Application 3: Statistics: Evaluated values: Calculated

Setup: App: Application 3: Statistics: Evaluation mode, MR function: Final evaluation, display + print

Step	Key (or instruction)	Display/Output				
1. Turn on the scale and configure the settings as indicated above	/[ON/OFF]					
2. Delete old statistics data, if necessary						
3. Tare the scale						
4. Toggle to Application 1: Counting	/[TOGGLE]					
5. Place the displayed number of parts on the scale (here: 10 pcs)	Place parts to be counted on the scale					
6. Initialize the Counting application	Start soft key	 <table><tr><td>nRef</td><td>10 pcs</td></tr><tr><td>wRef</td><td>10.62600 g</td></tr></table>	nRef	10 pcs	wRef	10.62600 g
nRef	10 pcs					
wRef	10.62600 g					
7. Remove the reference sample quantity and toggle to Statistics	Unload the scale /[TOGGLE]					
8. Place a number of parts on the scale (here: 35 pcs)	Place parts on the scale					

9. Store piece count

M+ soft key

Max6200 g	d= 0.01g
0% ■■■■■	100% ▲
+ 35 pcs	
STATI.: n=1 Qnt + 35 pcs	
isoTST	MR M- M+

16.01.97	11:06:54
n	1
Qnt +	35 pcs

10. Unload the scale

Remove parts from the scale

11. Place another load of parts on the scale (e.g., 29 pcs)

Place parts on the scale

Max6200 g	d= 0.01g
0% ■■■■■	100% ▲
+ 29 pcs	
STATI.: n=1 Qnt + 35 pcs	
isoTST	MR M- M+

12. Add piece count to stored total

M+ soft key


Max6200 g	d= 0.01g
0% ■■■■■	100% ▲
+ 29 pcs	
STATI.: n=2 Qnt + 29 pcs	
isoTST	MR M- M+

n	2
Qnt +	29 pcs

13. Repeat steps 11 and 12 as required

14. Display final evaluation ("Info" window)

MR soft key

(here: 5 weighing operations;
total quantity: 165)
The  indicates which value is displayed in the text line; you can change this selection

STATI.:	
Calculated: n	5
Calculated: \bar{x} =	+ 33.0 pcs
Calculated: s =	+ 3.2 pcs
Calculated: srel =	+ 9.70 %
oCalculated: Σ =	+ 165 pcs
<<	✓ ↓

15. Print final evaluation

/[PRINT]

n	5
Avg. +	33.0 pcs
s +	3.2 pcs
srel +	9.70 %
Total +	165 pcs
Min +	29 pcs
Max +	37 pcs
Diff +	8 pcs
16.01.97	11:16

Extra Functions (in the Application menu)

Second Tare Memory (Preset Tare)

Purpose

With this function you can store the weight currently on the scale as a tare weight, or use the numeric keys to enter a number for a preset tare weight.

You can use this function in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Store a weight on the scale in the second tare memory (without numeric input)
- Store a numeric value in the second tare memory (input using the numeric keys)
- Label a net value as **N1** when there is a value stored in the second tare
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5
The soft key designation for this function is: **PT1/T1**
- Automatic printout when a value is stored or input (see “Configuring the Scale”)
- Press **[CF]** to delete the (preset) tare value

Factory Settings

Automatic printout: **Off**

Soft Key Functions

PT1/T1	Store weight as tare value
PT1	Store input value as tare value

Preparation





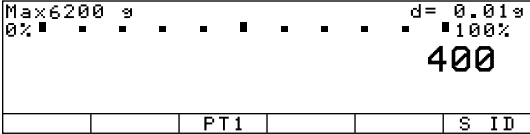
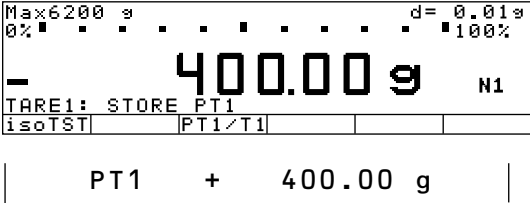

- Turn on the scale: Press **[ON]**/[ON/OFF]
> Sartorius logo is displayed, self-test is performed
 - Select Extra function (F4) or Extra function (F5) in the Setup menu: Press **[SETUP]**
 - Select the Application menu: **APP** soft key
 - Select **Extra func. (F4)** or **Extra func. (F5)**
 - Select **2nd tare memory**
 - Confirm **2nd tare memory**
 - Select and confirm:
 - **Automatic printout:**
Net value or
Tare/preset tare or
Off
- see also the “Application Menu (Overview)” in the chapter entitled “Configuring the Scale”
- Save settings and exit the Setup menu: Press **[SETUP]**

Practical Example

Determine the Contents of Bottles: Bottle weight = 400 g.

Settings (changes in the factory settings required for this example):

Setup: App: Extra function(F4): 2nd tare memory: Automatic printout: Tare/preset tare

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	 /[ON/OFF]	
2. Enter bottle weight (here: 400 g)	  	
3. Store tare value	PT1 soft key	
4. Determine content weight of bottles (here: contents = 650 g)	Place filled bottles on the scale	

Identification Codes

Purpose

With this function you can assign identifiers to values for documentation and printouts.

You can use this function in combination with a program from Application 1 (e.g., counting, weighing in percent), one from Application 2 (checkweighing, time-controlled functions) and one from Application 3 (totalizing, formulation, statistics).

Available Features

- Store up to 4 identifiers
- Access 1 of the 4 identifiers directly using the numeric keys
- Up to 20 characters per identifier
- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5
- Press the **ID** soft key to display an identifier
- You can configure when the identifier is included on the printout (see "Preparation," this page)
- Press **Delete** to delete an identifier
- Optional configuration in the Setup menu to delete a single character of an identifier by pressing **[CF]**. Basic settings: Keypad: CF function for input: Delete last character

Factory Settings

Printout:

Each time the print key is pressed

Soft Key Functions

ID	Toggle to "Identification codes" menu
Delete	Delete input of selected identifier

Preparation

- Turn on the scale: Press **[ON]**/[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
 - Select Extra function (F4) or Extra function (F5) in the Setup menu: Press **[SETUP]**
 - Select the Application menu: **APP** soft key
 - Select **Extra func. (F4)** or **Extra func. (F5)**
 - Select **Identification codes**
 - Confirm **Identification codes**
 - Select and confirm:
 - **Printout:**
Automatic, if configured or
Once aft. pressing Print, if config. or
Each time the print key is pressed or
Once for M+ func. (app.3 memory)
- see also the "Application Menu (Overview)" in the chapter entitled "Configuring the Scale"
- Save settings and exit the Setup menu: Press **[SETUP]**

Practical Example

Include company address as well as the lot number of the sample on printout.
Include this ID on every printout of the net value.

Settings (changes in the factory settings required for this example):

Setup: App: Extra function(F4): Identification codes: Printout: Each time the print key is pressed

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	/[ON/OFF]	
2. Select Identification code input	ID soft key	<div> ID: ID1: ID2: ID3: ID4: << Delete v ↓ </div>
3. Enter data for ID1: (here: Sartorius)	... see also page 34	<div> ID: ID1: SARTORIUS ID2: ID3: ID4: << Delete v ↓ </div>
4. Confirm input	↓ soft key	<div> ID: ID1: SARTORIUS ID2: ID3: ID4: << Delete v ↓ </div>
5. Repeat steps 3 and 4 for ID2: GOETTINGEN ID3: WEENDER STRASSE ID4: LOT 15		<div> ID: ID1: SARTORIUS ID2: GOETTINGEN ID3: WEENDER STRASSE ID4: LOT 15 << Delete ^ ↓ </div>
6. Place the first sample on the scale (here: 210.53 g)	Place load on the scale	<div> Max 6200 g d= 0.01g 0% 100% + 210.53 g isoTST ID </div>
7. Print weight value (If desired, perform further weighing operations and print values)	/[PRINT]	<div> ID1 SARTORIUS ID2 GOETTINGEN ID3 WEENDER STRASSE ID4 LOT 15 N + 210.53 g </div>
8. When weighing is completed, delete each ID code	ID soft key Press the Delete soft key 4 times	<div> ID: ID1: SARTORIUS ID2: GOETTINGEN ID3: WEENDER STRASSE ID4: LOT 15 << Delete v ↓ </div>

Manual Storage (M+)




Purpose

With this function you can load weight values and calculation results directly from Application 1 (e.g., counting, weighing in percent) or Application 2 (checkweighing, time-controlled functions) into Application 3 (totalizing, formulation, statistics).

Available Features

- You can assign this function to the fourth or fifth soft key (from the right), i.e. F4 or F5
The soft key designation for this function is: **M+**
- An Application 3 program (totalizing, formulation or statistics) must be running so you can display and print the result

Preparation

- Turn on the scale: Press /[ON/OFF]
 - > Sartorius logo is displayed, self-test is performed
- Select Extra function (F4) or Extra function (F5) in the Setup menu: Press 
- Select the Application menu: **APP** soft key
- Select **Extra func. (F4)** or **Extra func. (F5)**
- Select **Man. store in app.3 memory (M+)**
- Confirm **Man. store in app.3 memory (M+)**
see also the “Application Menu (Overview)” in the chapter entitled “Configuring the Scale”
- Save settings and exit the Setup menu: Press 

Factory Settings

There are no optional parameters

Basic Settings

Keypad

You can assign different functions to the **[CF]** key for deleting input and applications.

When you delete applications, you can delete either all data stored for that application or just selected data.

CF function in application

When you delete input, you can either delete all the data input in a field, or only the last character entered.

CF function for inputs

You can block key functions; you can choose whether to block all keys (except **[I/O]** and **[SETUP]**) or just the alphanumeric keys.

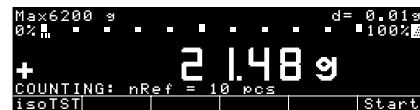
Block key functions

Display

You can configure the display for your individual needs.

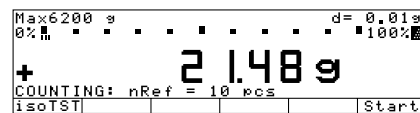
Characters can be displayed in black on white or vice versa.

Background

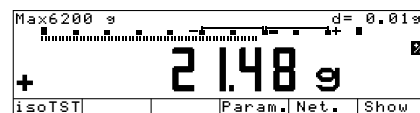


You can blank out either the bar graph or the text line or both

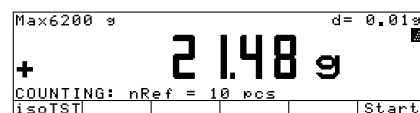
Digit size



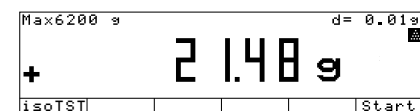
10mm + bar graph
+ text display



13mm + bar graph



13mm + text display



13mm

You can blank out the display of application symbols

Application symbols

Printout Configuration

Many of the application programs require values to be input for initialization. You can configure the scale to print all initialization values, or only the main values, automatically as soon as they are set. **Auto print upon initialization**

You can have weighed and calculated values printed without an ID code (16 characters) or with an ID code designation (22 characters)

Line format. See also "Data Output Functions."

You can have the ISO/GLP/GMP-compliant printout generated each time, only after calibration/adjustment or never. See also "Data Output Functions."

ISO/GLP/GMP printout

Auto-Start Application when the Scale is Switched On

You can configure the scale so that, when you turn on the scale, the application that was running before the scale was turned off is started automatically.

Auto-Start app. when power goes on

Additional Functions (in the Scale menu)

Password

You can block access to parameter settings in the Setup menu and to the ID-code input function, as well as to the exact calibration weight, by assigning a password.

Enter the password under Setup: Input. See "Configuring the Scale" for a detailed description.

Protecting Menu Parameters

In the Setup menu, you can define whether menu parameters are

- accessible for changes (**Change parameters, [8-1-1]**)
- can be read only (**Read parameters, [8-1-2]**)







Acoustic Signal

An acoustic signal is emitted when you press a key. When the key pressed is allowed, the signal is a single beep-tone; when it is not allowed, this is signaled by a double-beep (key does not initiate a function). In the Setup menu, you can configure whether

- the acoustic signal should sound (**On, [8-2-1]**)
- the acoustic signal should not sound (**Off, [8-2-2]**)

Universal Switch for Remote Control

You can connect an external universal switch to the interface port of your scale (e.g., a foot switch) for remote control of the functions listed below. In the Setup menu, you can configure which function is to be controlled via remote switch:

Function	Menu item
 PRINT key	[8-4-1]
 TARE key	[8-4-2]
 CAL key	[8-4-3]
 F1 function key	[8-4-4]
 CF key	[8-4-5]
 F2 function key	[8-4-6]

See the "Pin Assignment Chart" in this manual for further information.

Display Backlighting

You can have the display backlit for improved readability of displayed values. In the Setup menu, you can configure whether the

- display backlighting is on (**On, [8-5-1]**)
- display backlighting shuts off automatically after 4 minutes without activity (**Auto off after 4 minutes, [8-5-3]**)

Power-On Mode

You can configure the scale so that when a power supply is connected,

- the scale is off (**Off/on/standby [8-6-1]** or **Off/on [8-6-2]**)
- the scale switches on automatically (**Auto on, [8-6-4]**)

You can also set the configurations so that when the scale is turned off after use, it is

- off (**Off/on, [8-6-2]**) (not possible with scales that have a weighing capacity ≥ 16 kg)
- in the standby mode (**Off/on/standby, [8-6-1]**)

After you turn on the scale, a self-test of the functions is run (**TEST** is displayed in the text line; the bar graph is shown)

After the self-test has been completed, the weighing range of the scale is displayed (line for metrological data shows different increments)

Automatic Shutoff

When parameter **[8-6-2]** is selected in the Setup menu, you can configure whether

- the scale shuts off automatically after 4 minutes without use (**After 4 minutes, [8-7-1]**)
- automatic shutoff is deactivated (**Off, [8-7-2]**)

Printing an ISO/GLP/GMP-compliant Record

In the Setup menu, you can configure whether

- no ISO/GLP/GMP-compliant record will be printed (**Off, [8-10-1]**)
- an ISO/GLP/GMP-compliant record will be printed only after calibration/adjustment (**Only for calibration/adjustment, [8-10-2]**)
- every printout will be an ISO/GLP/GMP-compliant record (**Always on, [8-10-3]**)

Undoing All Parameter Changes – Reset Function

There is a factory setting for each parameter. In the Setup menu, you can configure whether

- factory settings will be restored after exiting Setup (**Factory settings, [9-1-1]**)

Combining Applications

The following table summarizes the possibilities for combination of the application programs described here. Each line stands for one combination. The weighing function is generally available, and does not have to be combined with a calculating function.

Application 1 (calculating function)	Application 2 (checkweighing function)	Application 3 (documenting function)
Counting	–	Totalizing
Counting	–	Formulation
Counting	–	Statistics
Weighing in percent	–	Totalizing
Weighing in percent	–	Formulation
Weighing in percent	–	Statistics
Animal weighing	–	Totalizing
Animal weighing	–	Statistics
Calculating	–	Totalizing
Calculating	–	Formulation
Calculating	–	Statistics
–	Checkweighing	Totalizing
–	Checkweighing	Formulation
–	Checkweighing	Statistics
Counting	Checkweighing	Totalizing
Counting	Checkweighing	Formulation
Counting	Checkweighing	Statistics
Weighing in percent	Checkweighing	Totalizing
Weighing in percent	Checkweighing	Formulation
Weighing in percent	Checkweighing	Statistics
Calculating	Checkweighing	Totalizing
Calculating	Checkweighing	Formulation
Calculating	Checkweighing	Statistics
–	Time-controlled functions	Totalizing
–	Time-controlled functions	Formulation
–	Time-controlled functions	Statistics
Counting	Time-controlled functions	Totalizing
Counting	Time-controlled functions	Formulation
Counting	Time-controlled functions	Statistics
Weighing in percent	Time-controlled functions	Totalizing
Weighing in percent	Time-controlled functions	Formulation
Weighing in percent	Time-controlled functions	Statistics
Animal weighing	Time-controlled functions	Totalizing
Animal weighing	Time-controlled functions	Statistics
Calculating	Time-controlled functions	Totalizing
Calculating	Time-controlled functions	Formulation
Calculating	Time-controlled functions	Statistics

Using Applications in Combination

Example 1: Checkweighing with statistical evaluation

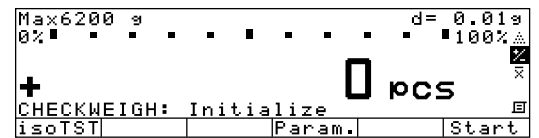
You want to check a piece count, and have the results that lie within the tolerance range statistically evaluated and printed as a ISO/GMP-compliant record.

Settings (changes in the factory settings required for this example):

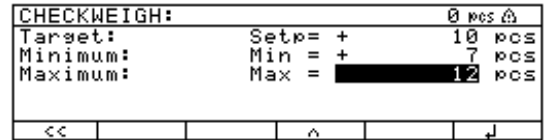
- Setup: App: Application 3: Statistics: Automatic storage: On, first value at stability
- Setup: App: Application 3: Statistics: Source of data for auto storage: Application 2
- Setup: App: Application 3: Statistics: Evaluated value: Calculated
- Setup: App: Application 3: Statistics: Evaluation mode, MR function: Intermediate evaluation, display+print
- Setup: App: Basic application: Printout configuration: ISO/GLP/GMP printout: Always

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	/[ON/OFF]	
2. Place reference sample quantity on the scale	Place parts on the scale	
3. Initialize the scale	Start soft key	
4. Remove reference sample quantity	Unload the scale	

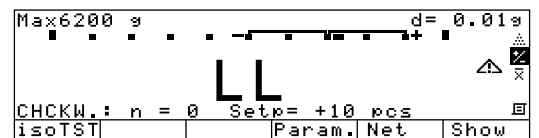
/[TOGGLE]



Param. soft key
 1 0, ↓ soft key
 7, ↓ soft key
 1 2

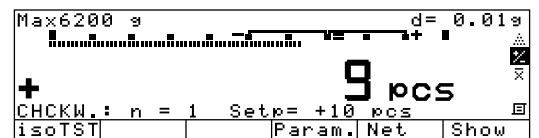


└ soft key

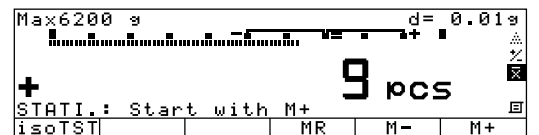


Setp	+	10	pcs
Min	+	7	pcs
Max	+	12	pcs

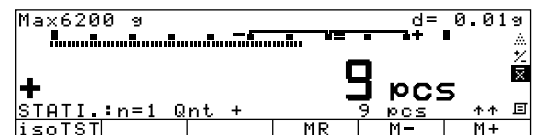
Place uncounted parts
on the scale



/[TOGGLE]



M+ soft key

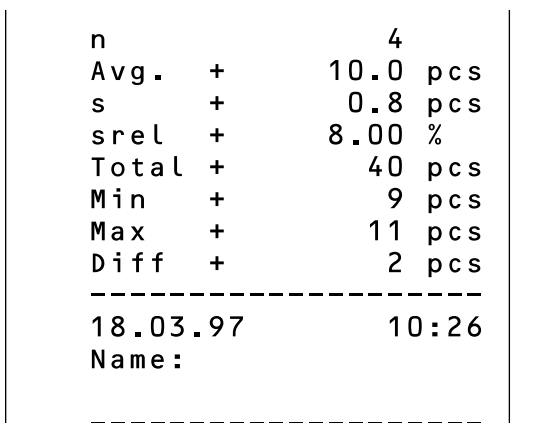


n 1
Q n t + 9 p c s

Place parts to be counted
on the scale

Printout is generated automatically

CF



CF

Practical Example 2: Animal weighing with statistics

Determine the weights of 7 mice; generate and print a statistical evaluation.

Settings (changes in the factory settings required for this example):

Setup: App: Application 1: Animal weighing: Start: Automatic

Setup: App: Application 1: Animal weighing: Printout: Off

Setup: App: Application 2: Off

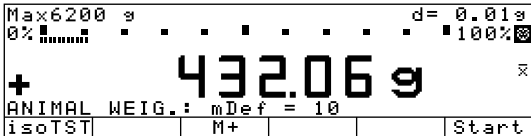
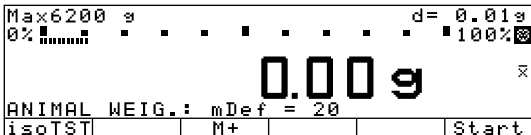
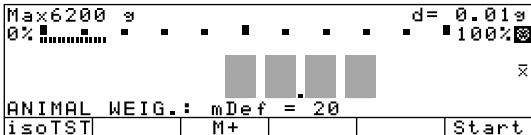
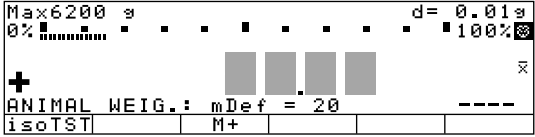
Setup: App: Application 3: Statistics: Automatic storage: On, first value at stability

Setup: App: Application 3: Statistics: Minimum load for automatic storage: 100 digits

Setup: App: Application 3: Statistics: Evaluated value: Calculated

Setup: App: Application 3: Statistics: Evaluation mode, MR function: Intermediate evaluation, display+print

Setup: App: Extra function(F4): Man. store in app. 3 memory (M+)

Step	Key (or instruction)	Display/Output
1. Prepare a container (cage)	Place empty cage on the scale	
2. Tare the scale	TARE	
3. Enter number of subweighing operations for averaging	2 0	
4. Save number	mDef soft key	
5. Weigh the first animal	Place 1st animal in cage	weight value fluctuates due to animal activity 
6. Start automatic animal weighing	Start soft key	

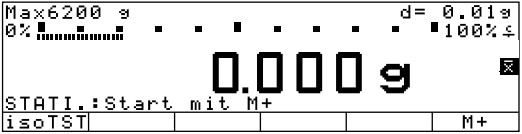
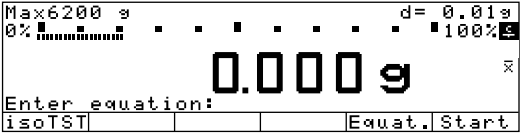
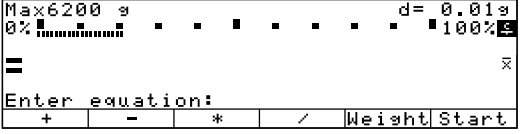
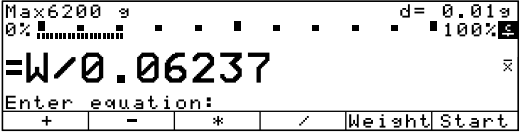
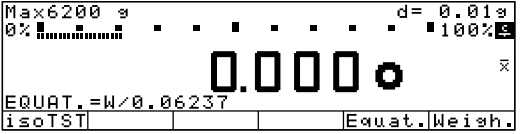
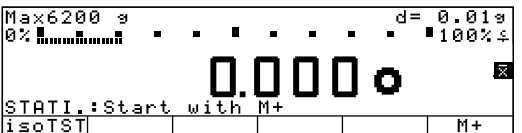
Step	Key (or instruction)	Display/Output
The scale delays starting the subweighing operation until three successive subweights lie within the range defined for a "calm" animal	When this criterion is met, the subweighing series begins	
After 20 subweighing operations (n: number of current subweigh x-Net: arithm. average, net value)		
7. Store result and activate autom. storage by pressing the M+ soft key (automatic storage is not active here*)	M+ soft key	
8. Unload the scale	Remove animal from cage	
9. Weigh all 7 animals	Place one animal after another in the cage	
The next weighing operation starts automatically; the result is stored automatically in the Statistics program		
10. View display, then print	[F1]/[TOGGLE] MR soft key [F2]/[PRINT]	
* The first time you store a value after the Statistics memory has been cleared, storage must be initiated manually, by pressing the M+ soft key. The subsequent values in the statistics series will be stored automatically.		

Practical Example 3: Calculation with statistics

Statistically determine the average gsm weight of A4 paper and document the result with a printout of the results on 10 samples. The gsm weight is a product of the division of the weight by the surface area. One A4 sheet has a surface area of 0.210 m x 0.297 m = 0.06237 m².

Settings (changes in the factory settings required for this example):

- Setup: App: Application 1: Calculation: Decimal places in calculated result: 3 decimal places
- Setup: App: Application 3: Statistics: Automatic storage: On, first value at stability
- Setup: App: Application 3: Statistics: Evaluated value: Calculated
- Setup: App: Application 3: Statistics: M+ / M- function, then tare: On

Step	Key (or instruction)	Display/Output
1. If necessary: turn on the scale and enter the settings given above	[ON/OFF]	
2. Clear Statistics memory and equation memory, if necessary	[CF]	
3. Place a container for the paper on the scale and tare	[TARE]	
4. Toggle to Calculation	[TOGGLE]	
5. Select equation input	Equat. soft key	
6. Enter equation (here: EQUAT.=W*0.06237)	Weight soft key * soft key 0 . 0 6 2 3 7	
7. Quit the equation input mode	Start soft key	
8. Toggle to Application 3: Statistics	[TOGGLE]	

Data Output Functions

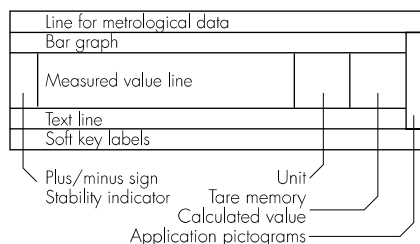
There are 3 options for data output:

- Output to the display and control unit
- Output to a printer (generate a printout)
- Output to a peripheral device (e.g., computer) via the interface port

Output to the Display and Control Unit

The display is divided into 9 sections. Information about the scale, the application being used and the sample weighed is output in the following sections:

- Line for metrological data
- Bar graph
- Plus/minus sign, stability symbol display
- Measured value line
- Weight unit display
- Data in tare memory; calculated value
- Application symbol display
- Text line
- Soft key labels



Line for Metrological Data (in legal metrology)

This line shows:

- Max 6200 g** – Maximum scale capacity (e.g., 6,200 g)
- Min 10 g** – Minimum scale capacity; the weight must not go below this limit when the scale is used in legal metrology (e.g., 10 g)
- e = 0.1 g** – Verification interval of the scale; irrelevant if the scale is not used in legal metrology (e.g., 0.1 g)
- d = 0.01 g** – Readability: Indicates the actual scale interval (display increment of the scale) (e.g., 0.01 g)

Bar Graph (overview display)

In the bar graph, weighing results are displayed either

- 0% 100%** – as a percentage of the maximum scale capacity, or
- 0% 100%** – in relation to a target value, with tolerance limits indicated.

You can turn off (blank) the bar graph display (Setup: App: Basic settings: Display: Digit size)

Plus/Minus Sign, Stability Symbol

This section shows:

- "Busy" symbol
- + -** – Plus or minus sign
- Zero symbol (indicating the scale has been zeroed)

Measured Value Line

This line shows:

- | | |
|--------------|---|
| 125.03 | - The current weight value (bordered values are invalid in legal metrology) |
| 35 | - Calculated values (e.g., piece count) |
| =W* 18.3*0.9 | - User input (e.g., lot number, equation) |

Weight Unit Display

This section shows:

- | | |
|-----|---|
| kg | - The current weight unit (e.g., kg) |
| pcs | - Designation of other values (e.g., "pcs") |

Tare Memory, Calculated Value

This section shows:

- | | |
|--------------|--|
| ▲ | - Indication that value is calculated (not valid in legal metrology) |
| NET N1 N2 PT | - Indication that the tare memory contains application data |

Application Symbols

This column shows:

- | | |
|------------|---|
| R1 ▲ % ⊗ ⚖ | - Symbol for Application 1 (toggling between weight units, counting, weighing in percent, animal weighing, calculation) |
| % ⊗ | - Symbol for Application 2 (checkweighing, time-controlled functions) |
| Σ ⚖ | - Symbol for Application 3 (totalizing, formulation, statistics) |
| ⊗ | - Symbol for current print job |
| ⊞ | - Symbol for ISO/GMP printout |

Text Line

This line contains:

- | | |
|-------------------------|---|
| COUNTING: nRef = 10 pcs | - Explanatory text about the application program (e.g., about "Counting") |
| Ref.wt. too light | - Explanation of error codes |

Soft Key Labels

This line shows

- | | |
|--------------------|--|
| Cal PT1/T1 S ID M+ | - Texts (abbreviations) to indicate the function assigned to each key |
| << < ^ v > ↓ | - Symbol for selecting and confirming parameter settings (see also "Operating Design") |

Scale Information

In the Setup menu, you can select **Setup: Info** for a display of scale information. The display includes:

SETUP		INFO	
Version no.:		01-35-02	
Sal. ver. no.:		00-20-06	
Model:		LA5200P	
Serial no.:		60906913	
<<			

- Software version number
- Scale version number
- Scale model
- Scale serial number

Printing a Data Record

Purpose

You can generate a printout of weights, other measured values and identification numbers for documentation purposes. You can format the printout to meet individual requirements.

Available Features

Print manually/automatically:

To print the information contained in the measured value line (weight readout, calculated value, numeric input, alphabetic input)

Line format: You can configure a data ID code of up to 6 characters for each of the values printed; this data ID code is printed at the beginning of the line

Sample ID: You can configure an extra line for identification of each weighed or calculated value

Print application parameters: You can generate a printout of the values configured for initialization of an application before printing the measured results

ISO/GMP-compliant printout:

To print out parameters relating to weighing conditions

Auto print: To have a printout generated automatically when certain conditions are met, e.g., time elapsed, stability reached, etc.

Print animal weights: For an automatic printout of animal weight, or of animal weight plus calculated weight after averaging

Auto print checkweighing results: for automatic printout of a weight when it lies within preset limits at stability

Auto print with time-controlled functions: for automatic printout of weights after a preset time period has elapsed or at a defined time

Printout of intermediate or final evaluation for totalizing, formulation and statistics by pressing the **MR** soft key

Setting a Printout Acceptable for Legal Metrology

You can configure the scale menu to generate data records on a Sartorius printer that are acceptable for legal metrology (last digit marked):

- YDPO1IS: **5 5 4**
- YDPO2: **5 5 5**
- YDPO3: **5 5 6**

Factory Settings

Manual/auto print mode:

Individual printout on request, or automatic printing dependent on stability:

Manual with stability **[6-1-2]**

Print basic application settings:

Printout of one or more initialization values for the current application: Off

Line format:

ID code for weighed or calculated value; up to 6 characters:

For other apps/GLP (22 characters)

ISO/GLP/GMP printout:

Documentation of weighing conditions for every series of weighing operations: Off

Auto print:

Automatic printout of weighed values:

No setting; see: Manual/auto print mode **[6-1-2]**

Stop auto print: not possible **[6-2-2]**

Time-dependent auto print:

1 display update **[6-3-1]**

Print animal weights:

Automatic printout of average or average and calculated values:

Average weight only

Auto print checkweighing:

Automatic printout of weight values within the checkweighing range at stability: Off

Auto print time-controlled functions:

Function after time interval: acoustic signal (not: Automatic printout)

Evaluation of totalizing, formulation and statistics data:

Evaluation mode, **MR** function: Intermediate evaluation, print

- See "Configuring the Scale" for details on how to set parameters

Print Manually/Automatically

The printout contains the current value in the measured value display (weight readout with weight unit; calculated value; numeric/alphabetic display)

Setting:

Setup: Menu: Print in weighing mode: Manual/auto print mode

Examples

```
+ 1530.000 g
+ 58.5620 oz t
+      253 pcs
+   88.23 %
+   105.78 o
```

Weight in grams
Weight in Troy ounces
Piece count
Percentage
Calculated value

Line Format

The current value displayed can be printed with a data ID code of up to 6 characters at the beginning of the line. You can use this data ID code, e.g., to designate a weight readout as a net weight (N) or a calculated value as a piece count (QNT)

Setting:


Setup: App: Basic settings: Printout configuration: Line format: For other apps./GLP (22 characters)

```
ID      ABC123DEF456GH
L ID    ABC123DEF456GH
W ID    ABC123DEF456GH
N      + 1530.000 g
Qnt     +      253 pcs
Prc     +   88.23 %
Nom.    +  2000.00 g
```


Identification number*
Lot number (weighing series)*
Weight set number*
Net value
Quantity
Percentage
Exact calibration weight

* = only for ISO/GMP-compliant records

Sample ID

You can have each weighed or calculated value that you print preceded by a line of text containing numbers and/or letters. You can either print this ID immediately as alphanumeric input (press /[PRINT]) or store it as the sample ID (**S ID** soft key) to be included on the next printout, if the "For other apps./GLP (22 characters)" setting is configured.

```
S ID    ABC123DEF456GH
ABC123DEF456GHI789JK
NUM      12345678
```

Sample ID
(with less than 14 characters)
Sample ID
(with more than 14 characters)
Numeric key output when  pressed

Print Application Parameters

You can generate a printout of one or more of the values configured for initialization of an application as soon as you initialize the scale.

This can include such values as nRef, wRef, pRef, etc.

Setting:

Setup: App: Basic settings:

Printout configuration: Autoprint upon initialization

```
nRef      10 pcs
wRef      1.23456 g
pRef      80 %
Wxx%      1200.00 g
mDef      10
Mul        0.00347
EQUAT. = W*18.3*0.9
Setp     + 1000.035 g
Min       + 981.054 g
Max       + 1020.063 g
```

Counting: Reference sample quantity
Counting: Average piece weight
Weighing in percent:
Reference percentage
Weighing in percent:
Reference weight
Animal weighing:
Number of subweighs for averaging
Animal weighing:
Multiplication factor
Calculation: Equation for calculation
Checkweighing: Target weight
Checkweighing: Lower limit
Checkweighing: Upper limit

Auto Print

You can have the weight readout printed automatically¹. This printout can be generated after a certain number of display updates²; you can also configure whether or not the auto-print function is dependent on the stability parameter³. The display update frequency depends on both the model of the scale and the current operating status.

Setting:

¹Setup: Menu: Print in weighing mode: Manual/auto print mode

²Setup: Menu: Print in weighing mode: Time-dependent autoprint

³Setup: Menu: Scale functions: Stability range

```
N      + 1530.00 g
S ID   12345678901234
Stat
Stat   L
Stat   H
```

Net weight
Sample ID
Display blank
Display underload
Display overload

Print Animal Weights

When using the animal weighing application, you can have the results printed automatically upon completion of the averaging process. You can also have both the weight and the calculated result printed.

```
mDef      10
Mul        0.00347
xNet + 1530.00 g
xRes + 5.30 o
```

Number of subweighs for averaging
Multiplication factor
Result of averaging
Calculated result

Print: Calculation

The calculation result is printed.

```
Res + 693.88 o
```

Result of calculation with equation

Auto Print Checkweighing

With the over/under checkweighing application, you can have the result printed automatically as soon as the weight lies within a defined range.

```
N      + 1530.000 g
Setp   + 1000.035 g
Min     + 981.054 g
Max     + 1020.063 g
N      + 1010.147 g
```

Net weight
Target weight
Lower limit
Upper limit
"OK" values-printout

Print: Time-Controlled Functions

If the "Automatic printout of values" parameter is set, the time and weight are printed.

```
Time:      10:15:00
N      + 3150.00 g
```

Time that values were stored
Net weight

Print: Totalizing, Formulation, Statistics

The transaction or component counter is printed before the measured value. When an intermediate or final evaluation is printed, all results to that point are included.

```
n      5
Comp2 + 42.38 g
Total + 8751.67 g
Tot.c p+ 324.89 g
n      5
Avg.   + 33.0 pcs
s      + 3.2 pcs
srel   + 9.70 %
Total + 165 pcs
Min    + 29 pcs
Max    + 37 pcs
Diff   + 8 pcs
```

Totalizing, statistics:
Transaction counter
Formulation:
Weight, 2nd component
Totalizing, statistics: Sum of all values
Formulation: Total no. of components
Statistics: Total no. of transactions
Statistics: Average
Statistics: Standard deviation
Statistics: Variation coefficient
Statistics: Sum of all values
Statistics: Minimum
Statistics: Maximum
Statistics: Difference between maximum and minimum

2nd Tare Memory/Identifier

Printout shows either

- Net value **N1**,
- Tare weight **T1**, or
- Manually entered tare value **PT1**

Up to 4 identifier lines can be included on the printout

```

N1          63.48 g
T1          138.73 g
PT1         150.00 g
ID1   Batch no. 1234
ID2   Eisenmeier GmbH
ID3       Screws: M4x6
ID4         Mr. Smith
  
```

Net val. with data in 2nd tare memory

Tare weight

Manually entered tare weight

Identifier 1

Identifier 2

Identifier 3

Identifier 4

ISO/GMP-compliant Printout/Record

You can have the parameters pertaining to weighing conditions printed before (GMP header) and after (GMP footer) the values from the weighing series. These parameters include:

- Date
- Time at the beginning of a weighing series
- Scale manufacturer
- Scale model
- Model serial number
- Software version
- Lot number (weighing series no.)
- Time at the conclusion of the weighing series
- Field for operator signature

```

-----
17.01.97    16:12:12
          SARTORIUS
Mod.        FC6CCE-H
Ser. no.    70419914
Ver. no.    01-35-02
ID          12345678901234
-----
L ID        12345678901234
nRef        10 pcs
wRef        1.35274 g
Qnt +       235 pcs
Qnt +       4721 pcs
S ID        12345678901234
Qnt +       567 pcs
-----
17.01.97    16:13:59
Name:
-----
  
```

Dotted line

Date/time

Scale manufacturer

Scale model

Scale serial number

Software vers. (display and control unit)

Scale ID no.

Dotted line

Weighing series no.

Application initialization value

Application initialization value

Counting result

Counting result

ID for counting result

Counting result

Dotted line

Date/time

Field for operator signature

Blank line

Dotted line

Operating the Scale with an ISO/GMP-capable Documentation Device (Printer)

ISO/GMP-compliant documentation requires a computer with special software. Contact Sartorius for a detailed description for creating this software.

Setting:

Setup: App: Basic settings:

Printout configuration: ISO/GLP/
GMP printout: Always

The record is output to a Sartorius printer or a computer.

End GMP printout:

- Press **[CF]**

End GMP printout while application is active:

This requires the following settings:

Setup: App: Basic settings: Keypad:

CF function in application: Clear only selected applications

- Press **[CF]**

> Text line: CF selected:
clear application

- Press the **GLP** soft key

```

-----
17.01.97    16:24:12
          SARTORIUS
Mod.        FC6CCE-H
Ser. no.    70419914
Ver. no.    01-35-02
ID
-----
L ID
Internal calibration
Start:      manual

Diff. +     0.006 g
Internal calibration
          completed
Diff. +     0.000 g
-----
17.01.97    16:25:57
Name:
-----
  
```

Record of Internal

Calibration/Adjustment:

Dotted line

Date/time

Scale manufacturer

Scale model

Scale serial number

Software vers. (display and control unit)

Scale ID no.

Dotted line

Weighing series no.

Calibration adjustment mode

Beginning mode for calibration/
adjustment

Difference after calibration/adjustment

Confirmation of completed

calibration/adjustment routine

Difference between current and target
values after calibration

Dotted line

Date/time

Field for operator signature

Blank line

Dotted line

Interface Description

Purpose

Your Factory scale comes equipped with an interface port for connection to a computer or other peripheral device.

You can use an on-line computer to change, start and/or monitor the functions of the scale and the application programs. The interface port also has four data output port lines for the over/under check-weighing program.

Available Features

Type of interface:	Serial interface
Operating mode:	Full duplex
Standard:	RS-232
Transmission rates:	150; 300; 600; 1,200; 2,400; 4,800; 9,600; 19,200 baud
Parity:	Space, odd, even
Character format:	1 start bit, 7-bit ASCII, parity, 1 or 2 stop bits
Handshake:	2-wire interface: via software (XON/XOFF); 4-wire interface: via hardware handshake lines (CTS/DTR)
Operating mode:	SBI, XBPI*
Network address*:	0, 1, 2, ..., 30, 31
Data output format of the scale:	16 or 22 characters

* XBPI operating mode: 9,600 baud, 8 bits, odd parity, 1 stop bit
Network address is only valid in the XBPI mode

Factory Settings:

Transmission rate:	1,200 baud	[5-1-4]
Parity:	Odd	[5-2-3]
Stop bits:	1 stop bit	[5-3-1]
Handshake:	Hardware 1 character after CTS	[5-4-3]
Operating mode:	SBI	[5-5-1]
Network address:	0	[5-6-1]
Print manually/automatically:	Manual after stability	[6-1-2]
Stop automatic printing:	Not possible	[6-2-2]
Automatic printout, time-dependent:	After 1 display update	[6-3-1]
Tare after ind. printout:	Off	[6-4-1]
Application initialization values:	Off	
Line format:	For other applications/GLP (22 characters)	

Preparation

- See the chapter entitled "Overview" for the pin assignment chart

Line Format (Data Output Format)

You can output the values displayed in the measured value line and the weight unit with or without a data ID code

Example: Without data ID code
+ 253 pcs

Example: With data ID code
Qnt + 253 pcs

Configure this parameter in the Setup menu (Setup: Basic settings: Printout configuration: Line format).

The output with data ID code has 16 characters; without data ID code, 22 characters.

Output Format With 16 Characters

Display segments that are not activated are output as spaces. Characters without a decimal point are output without a decimal point.

The following characters can be output, depending on the characters displayed on the scale:

Normal Operation

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	+	*	D	D	D	D	D	D	D	D	*	U	U	U	CR	LF
or	—	*	*	*		
or	*		*	*	*	*	*	*	*	*						
or					0	0	0	0	0	0						

*: Space
 D: Digit or letter
 U: Unit symbol
 CR: Carriage return
 LF: Line feed

Special Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	*	*	*	—	—	*	*	*	*	*	*	CR	LF
or							H	H								
or							L	L								
or							C									

*: Space
 — —: Weight
 H: Overload
 H H: Overload in checkweighing
 L: Underload
 L L: Underload in checkweighing
 C: Calibration/adjustment

Error Codes

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	*	*	*	E	r	r	*	*	/	#	#	*	*	*	*	CR LF

*: Space
 # # #: Error code number

You can connect a computer to your scale to send commands via the scale interface port to control scale functions and applications.

Format for Control Commands

Esc:	Escape	_:	Underline (ASCII: 95)
!:	Command character	CR:	Carriage RETURN (optional)
#:	Number	LF:	Line FEED (optional)
&:	Number or letter	max:	depends on command character: i.e. parameter: once the max. length is reached, input received is cut off, rather than discarded as with keyboard input

See "Overview"
for an ASCII table

Format 1

Format 2

Format 3 (not allowed
in the Setup menu)

Format 4

* numbered from right to left

Synchronization

During data communication between the scale and an on-line device (computer), messages consisting of ASCII characters are transmitted via the interface. For error-free data communication, the parameters for baud rate, parity, handshake mode and character format must be the same for both units.

You can set these parameters in the Setup menu so that they match those of the on-line device. You can also define parameters in the scale to make data output dependent on various conditions. The conditions that can be configured are described under each of the application program descriptions.

If you do not plug a peripheral device into the scale interface port, this will not generate an error message.

Handshake

The scale interface (Sartorius Scale Interface = SBI) has transmit and receive buffers. You can define the handshake parameter in the Setup menu:

- Hardware handshake (CTS/DTR)
- Software handshake (XON, XOFF)

Hardware Handshake

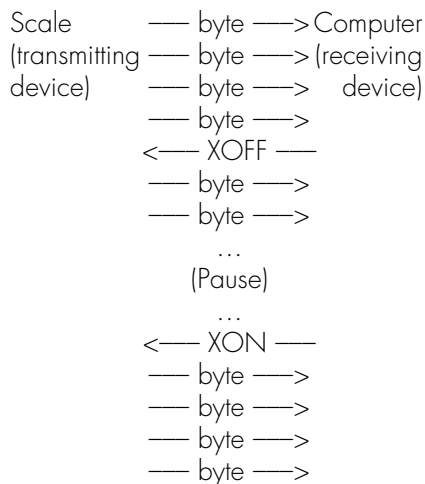
With a 4-wire interface, 1 more character can be transmitted after CTS (Clear to Send).

Software Handshake

The software handshake is controlled via XON and XOFF. When a device is switched on, XON must be transmitted to enable any connected device to communicate.

When the software handshake is configured in the Setup menu, the hardware handshake becomes active after the software handshake.

The data transmission sequence is as follows:



Transmitting Device:

Once XOFF has been received, it prevents further transmission of characters. When XON is received, it re-enables the transmitting device to send data.

Receiving Device:

XOFF is transmitted after the 26th character has been stored. To prevent too many control commands from being received at one time, XON is not transmitted until the buffer is almost empty.

Activating Data Output

You can define the data output parameter so that output is activated either when a print command is received or automatically and synchronous with the scale display or at defined intervals (see application program descriptions and auto-print setting).

Data Output by Print Command

The print command can be transmitted by pressing [Ⓢ]/[PRINT] or by a software command (Esc P).

Automatic Data Output

In the "auto print" operating mode, data are output to the interface port without a print command. You can choose to have data output automatically at defined print intervals with or without the stability parameter. Whichever parameter you select, the data will be output as the readouts appear on the scale display. The display update frequency depends on both the model of the scale and the current operating status.

If you select the auto print setting, data will be transmitted immediately the moment you turn on the scale. In the Setup menu you can configure whether this automatic output can be stopped and started by pressing [Ⓢ]/[PRINT].

Pin Assignment Chart

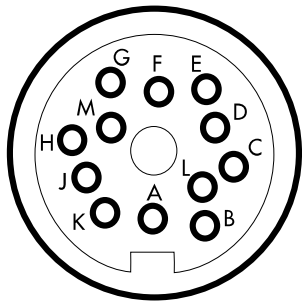
Female Interface Connector:

12-contact, with screw-lock hardware for cable gland

Male Connector Required:

Type C091D, 12-pin round male connector with screw-lock hardware, Amphenol (IP65); Sartorius order no.: 69QC0010.

Pin Assignment Chart:



⚠ Warning When Using Pre-wired RS-232 Connecting Cables!

RS-232 cables purchased from other manufacturers often have incorrect pin assignments for use with Sartorius scales. Be sure to check the pin assignment against the chart below before connecting the cable, and disconnect any lines marked "Internally Connected" (e.g., pin 6). Failure to do so may damage or even completely ruin your scale and/or peripheral device.

12-pin round connector	25-pin adapter	RS-232 signal (SBI and xBPI)	RS-485* signal (xBPI)
A	18	Ctrl. output "heavier"	Ctrl. output "heavier"
B	2	Data output (TxD)	RxD – TxD – N
C	3	Data input (RxD)	RxD – TxD – P
D	20	Data Terminal Ready (DTR)	
E	7, 8, 14	Signal GND	Signal GND
F	13, 25, 12	+5 V output	+5 V output
G	16	Ctrl. output "lighter"	Ctrl. output "lighter"
H	5	Clear to Send (CTS)	
J	17	Ctrl. output "equal"	Ctrl. output "equal"
K	15	Universal switch**	Universal switch**
L	19	Ctrl. output "set"	Ctrl. output "set"
M	11	+12 V output	+12 V output

Connect shield with low ohms to the housing.

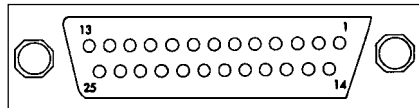
* Optional – only with a special data output – see "Accessories" section

** See the "Extra Functions" section for information on the universal remote switch functions

Cabling Diagram (adapter cable – round – DB25-scale)

Order No. YCC01-0016M3

Female interface connector:
25-contact, D-Submini DB25S with
screw lock hardware
Pin labeling of the 25-contact D-SUB
connector:



Connector – front view

Male connector used:
(please use connectors with the
same specifications):
25-pin D-Submini DB25S, with
integrated shielded cable clamp
assembly (Amp type 826 985-1C)
and fastening screws (Amp type
164 868-1)

Pin Assignment:

Pin 1: Signal Ground
Pin 2: Data Output (TxD)
Pin 3: Data Input (RxD)
Pin 4: Signal Return (TxD/RxD)
Pin 5: Clear to Send (CTS)
Pin 6: Internally Connected
Pin 7: Internal Ground
Pin 8: Internal Ground
Pin 9: Reset _ In**)
Pin 10: –12 V
Pin 11: +12 V
Pin 12: Reset _ Out**)
Pin 13: +5 V
Pin 14: Internal Ground
Pin 15: _____
Pin 16: <
Pin 17: =
Pin 18: >
Pin 19: SET
Pin 20: Data Terminal Ready (DTR)
Pin 21: Supply Voltage Ground "COM"
Pin 22: Not Connected
Pin 23: Not Connected
Pin 24: Supply Voltage Input +15...25 V
Pin 25: +5 V

Cabling Diagram (Adapter Cable for PC)

(Adapter cable YCC01-03ISM5 – round – DB25-PC)

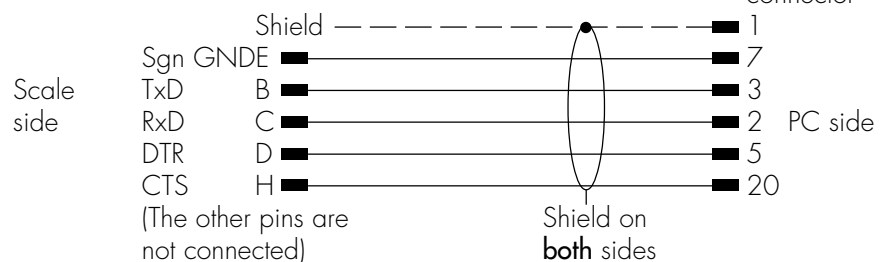
– Diagram for interfacing a computer to the scale using the RS-232C/V24
standard and cables up to 15 m (50 ft) long

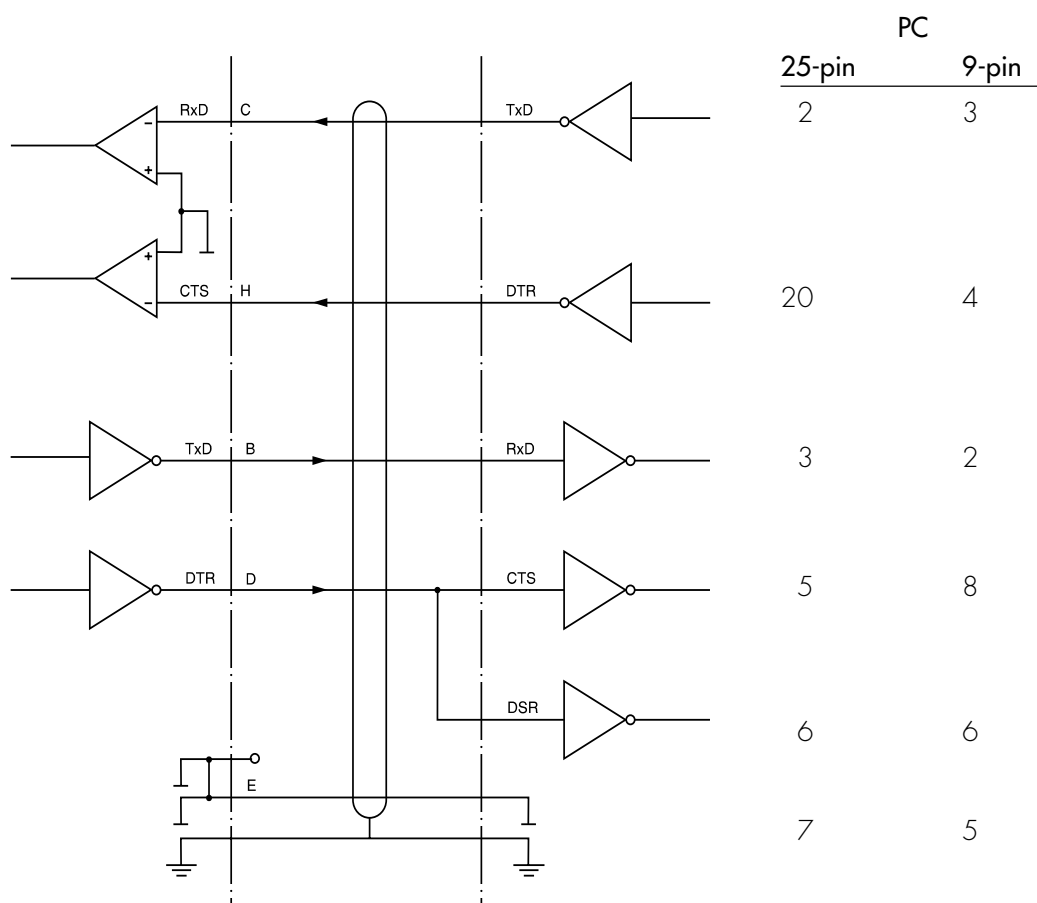
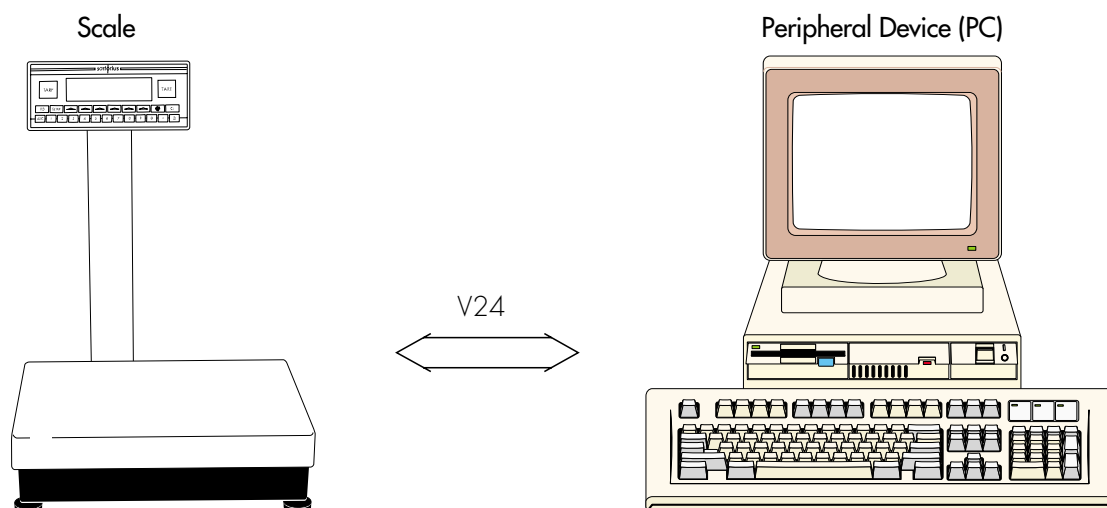
Cabling diagram:

Connection assignments for the cable from the scale to an
RS-232 PC interface

Round connector or,
12-pin

25-contact
D-Submini
connector


























Type of cable: AWG 24 specification

Error Codes

Error codes are displayed in the main display or text line for 2 seconds.
The program then returns automatically to the previous status.

Display	Cause	Solution
No segments appear on the display	No AC power is available The AC adapter is not plugged in Automatic shutoff configured in Setup (code 8 7 1)	Check the AC power supply Plug in the AC adapter Press [I/O] to switch on the scale or select code 8 7 2 in Setup ("no automatic shutoff")
H	The load exceeds the scale capacity	Unload the scale capacity
L or Err 54	The weighing pan is not in place	Place the weighing pan on the scale
Err 01 > Display range	Data output not compatible with output format	Change the configuration in the Setup menu
Err 02 Cal. n. possible	Calibration/adjustment condition not met, e.g., – The scale was not tared – The scale is loaded	Calibrate only when zero is displayed Press [TARE] to tare Unload the scale
Err 03 Cal./adj. interrupt	Calibration/adjustment could not be completed within a certain time	Allow the scale to warm up again and repeat the adjustment process
Err 06 Int. wt. defective	Built-in calibration weight is defective	Contact your local Sartorius Service Center
Err 07 Function blocked	Function not allowed in scales verified for use in legal metrology	Contact your local Sartorius Service Center for information on having the settings changed
Err 08* <> zero range	The load on the scale is too heavy to zero the readout	Check whether the "power-on zero range" is set
Err 09* < 0 not allowed	Taring is not possible when the gross weight is \leq zero	Zero the scale
Err 10 Tare fct. blocked	Tare key and 2nd tare memory are blocked when there is data in the tare memory for the formulation application	Press [CF] to clear the formulation application; the tare key and 2nd tare memory are then accessible
Err 11 Tare2 blocked	Tare memory not allowed	Check the tare value entered
Err 12 Tare2 > Max.	Tare memory greater than weighing range or range limits	Check sample/container
Err 17 Adj.-wt. > Max.	Internal adjustment is not possible because preload is too heavy	Reduce the preload or change the configuration
Err 30 Print fct. blocked	Interface port for printer output is blocked	Contact your local Sartorius Service Center

* = occurs only via the SBI interface (ESC f3_/f4_)

Display/Problem	Cause	Solution
Err 31 Print fct. blocked	Interface handshake interrupted (XOFF, CTS)	Transmit XON, then CTS
Ref.wt. too light	Error in storing reference weight (with the counting or weighing-in-percent application)	Weight too light or there is no sample on the scale
Cannot update	Reference updating not possible (with the counting application)	See "Counting" in "Operating the Scale" for reference updating criteria
Not a number xxxxx Too low xxxxx Too high	Input wrong (with any application program), e.g., alphabetic input not allowed	Follow the instructions for the application programs
Too many char.	Input text too long	Allowable text lengths, incl. decimal point: – S ID, NUM, L ID, ID: max. 20 characters – W ID: max. 14 characters
Err 10x x = 1 : x = 2 : x = 3 : x = 4 : "Checkerboard" pattern displayed continuously	Key is stuck Key pressed when switching on the scale: <div style="display: flex; flex-wrap: wrap;"> <div style="margin-right: 10px;">  (F1, F2, F5, F6),  CF </div> <div style="margin-right: 10px;">  (F3),  0,  3,  4,  9 </div> <div style="margin-right: 10px;">  2,  5,  6,  .,  Q,  TARE-right </div> <div style="margin-right: 10px;">  1,  7,  8,  (F4),  ABC, </div> <div style="margin-right: 10px;">  TARE-left </div> <div>  SETUP key was pressed when turning on the scale, or is stuck </div> </div>	Release key or Contact your local Sartorius Service Center
Err 340	Operating parameter (EEPROM) is wrong	Contact your local Sartorius Service Center
No WP	Weighing platform is defective	Contact your local Sartorius Service Center
blocked	Function blocked	none
The special code  remains displayed	None of the keys has been pressed since the scale was turned on	Press a key
The weight readout changes constantly	Unstable ambient conditions Too much vibration, or the scale is exposed to a draft A foreign object is caught between the pan and the scale housing	Set up the scale in another area Change Setup configurations to adapt the scale to the ambient conditions Remove the foreign object
The weight readout is obviously wrong	The scale has not been calibrated/adjusted The scale was not tared before weighing The scale is not level The dust cover is caught under the weighing pan	Calibrate/adjust the scale Tare before weighing Level the scale See "Replacing the Dust Cover" in the chapter "Care and Maintenance"

If any other errors occur, contact your local Sartorius Service Center!

Care and Maintenance

Service

Regular servicing by a Sartorius technician will extend the service life of your scale and ensure its continued weighing accuracy. Sartorius can offer you service contracts, with your choice of regular maintenance intervals ranging from 1 month to 2 years.

Repairs

Repair work must be performed by trained service technicians. Any attempt by untrained persons to perform repairs may lead to hazards for the user.

Cleaning

- ⚠ Make sure that no dust or liquid enters the scale housing
- ⚠ Do not use any aggressive cleaning agents (solvents or similar agents)
- Unplug the AC adapter from the wall outlet (mains supply)
- If you have a data cable connected to the interface, unplug it from the scale
- Carefully remove any sample residue/spilled powder by using a brush or a hand-held vacuum cleaner
- Clean the scale using a piece of cloth which has been wet with a mild detergent (soap)
- After cleaning, wipe down the scale with a soft, dry cloth

Replacing the Dust Cover

- > Instructions for replacing a damaged dust cover

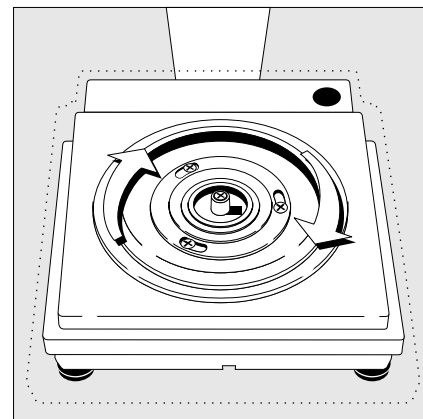
FC06BBE-S

- Remove the following parts from the scale:
 - Draft shield cover
 - Glass draft shield cylinder
 - Weighing pan
 - Pan support
 - Shield disk: turn clockwise and lift off
 - Old dust cover
- Place the new dust cover on the scale and press down on the front and back along the edges until it is seated firmly
- Place the shield disk on the scale and turn it counterclockwise
- Follow the above instructions in reverse order when placing remaining parts back on the scale.

FC6CCE-H, FC2CCE-S, FC12CCE-S, FC6CCE-S

- Remove the following parts from the scale:
 - Weighing pan
 - Pan draft shield (depending on scale model)
 - Old dust cover
- Place the new dust cover over the scale
- Follow the above instructions in reverse order when placing remaining parts back on the scale.

- ⚠ The dust cover must not touch the weighing pan



Safety Inspection

If there is any indication that safe operation of the scale with the AC adapter is no longer warranted:

- Turn off the power and disconnect the equipment from AC power immediately
- > Lock the equipment in a secure place to ensure that it cannot be used for the time being

Safe operation of the scale with the AC adapter is no longer ensured when:

- there is visible damage to the AC adapter
- the AC adapter no longer functions properly
- The AC adapter has been stored for a relatively long period under unfavorable conditions

In this case, notify your nearest Sartorius Service Center or the International Technical Support Unit based in Goettingen, Germany. Maintenance and repair work may only be performed by service technicians who are authorized by Sartorius and who

- have access to the required maintenance manuals
- have attended the relevant service training courses

Instructions for Recycling the Packaging

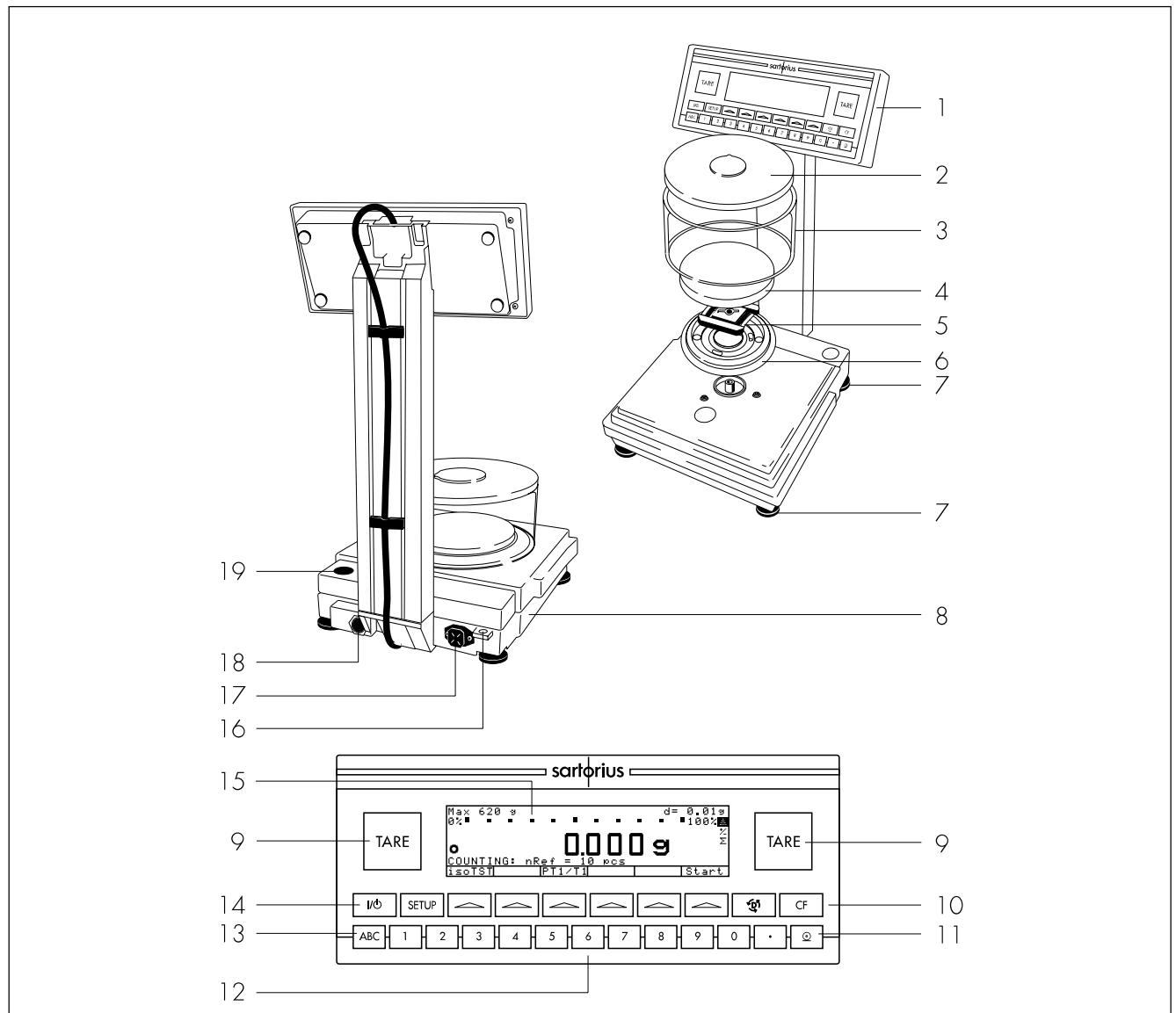
To ensure safe shipment, your scale has been packaged using environmentally friendly materials. After successful installation of the scale, you should return this packaging for recycling.

For information on recycling options, including recycling of old weighing equipment, contact your municipal waste disposal center or local recycling depot.

Overview

General Views of the Scales

FC06BBE-S(OCE)

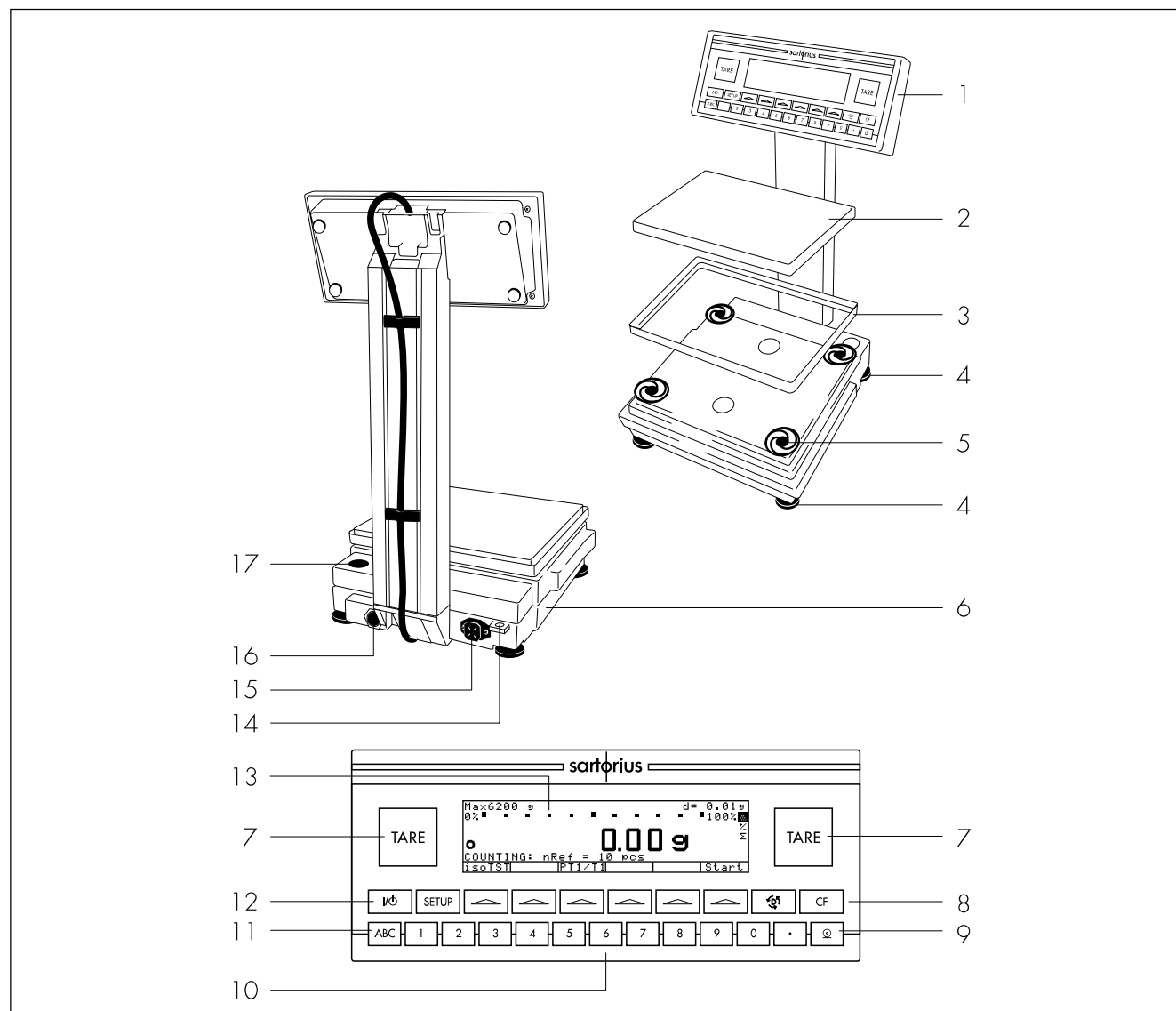


No.	Designation	Order no. for replacement	No.	Designation	Order no. for replacement
1	Display and control unit		13	Toggle key for alphabetic input	
2	Draft shield cover	69 LP 0002	14	On/off key	
3	Glass draft shield cylinder	69 14290	15	Weight display	
4	Weighing pan	69 LP 0004	16	Lug for attaching an anti-theft locking device	
5	Pan support	69 LP 0005	17	AC jack	
6	Shield disk	69 LP 0003	18	Interface port	
7	Leveling foot	69 B20005	19	Level indicator	
8	Metrological ID label (only on verified models or models acceptable for legal metrological verification)		Not shown:		
9	Tare key		Dust cover for weighing platform		
10	Function keys		Dust cover for display and control unit		
11	Print key		Protective caps and plugs (set)		
12	Keys for numeric input				

General Views of the Scales

FC6CCE-H(0CE), FC2CCE-S(0CE), FC12CCE-S(0CE), FC6CCE-S(0CE)

The "0CE" suffix appended to the model number indicates a verified or verifiable scale model

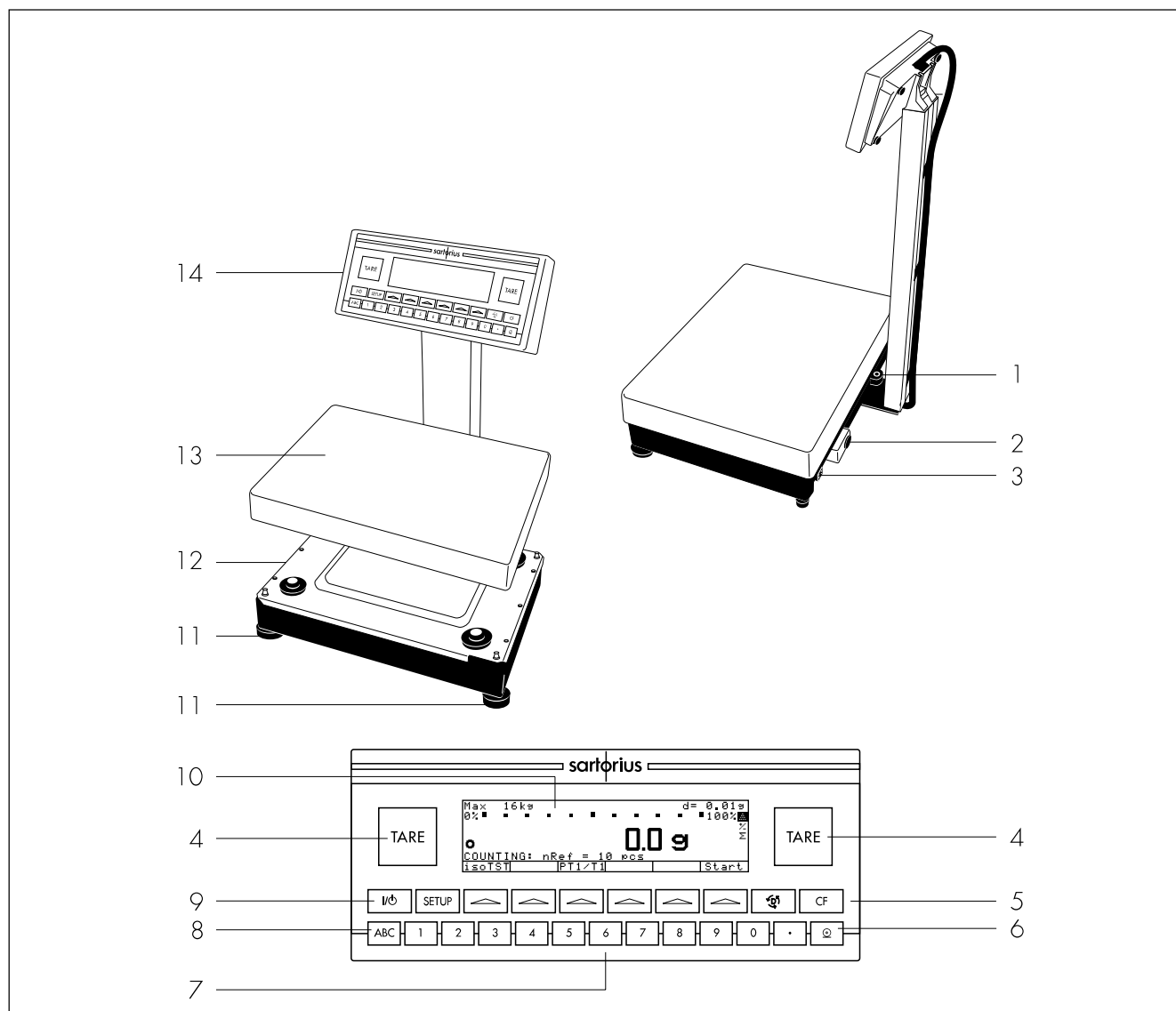


No.	Designation	Order no. for replacement	No.	Designation	Order no. for replacement
1	Display and control unit		10	Keys for numeric input	
2	Load plate	69 LP0007	11	Toggle key for alphabetic input	
3	Glass draft shield cylinder (depending on model)	69 LP0008	12	On/off key	
4	Leveling foot	69 B20005	13	Weight display	
5	Shock absorber	69 LP0010	14	Lug for attaching an anti-theft locking device	
6	Metrological ID label (only on verified models or models acceptable for legal metrological verification)		15	AC jack	
7	Tare key		16	Interface port	
8	Function keys		17	Level indicator	
9	Print key		Not shown:		
				Dust cover for weighing platform	69 60FB02
				Dust cover for display and control unit	69 60LP03
				Protective caps and plugs (set)	69 B20009

General Views of the Scales

FC34EDE-P(OCE), FC16EDE-S(OCE), FC12EDE-P(OCE), FC64EDE-S(OCE)

The "OCE" suffix appended to the model number indicates a verified or verifiable scale model



No.	Designation	Order no. for replacement	No.	Designation	Order no. for replacement
1	Level indicator		10	Weight display	
2	Interface port		11	Leveling foot	69 LC0093
3	AC jack		12	Metrological ID label	
4	Tare key		13	Load plate	69 LC0106
5	Function keys		14	Display and control unit (only on verified models or models acceptable for legal metrological verification)	
6	Print key				
7	Keys for numeric input				
8	Toggle key for alphabetic input				
9	On/off key				

Not shown:

Dust cover for display and control unit 69 60LP03

Description of the Keys

Standard Function Keys

 key On/off switch

Switches the display on/off.
The scale remains in standby mode.

 key Configuring the Scale

- Access to the Setup menu
- Stores settings and exits Setup menu

You can select:

App

Application menu with plain English prompts for adapting applications to individual requirements

Info

Display basic information about the equipment (e.g., model name, serial no., software version)

Menu

Scale operating menu with plain English prompts for adapting the scale to individual requirements

Input

For entering identifying information (e.g., scale ID)

 key Clear

This key is generally used to interrupt/cancel functions:

- Delete keyboard input and clear memory
- Interrupt calibration/adjustment routines
- Return application program to previous status





 key Tare

Two large keys for initiating the tare function. Ideally situated for both right-handed and left-handed operation.

Sets the readout to zero. With scales that have the "PolyRange" weighing capacity structure, the fine range is available when this key is pressed.

 key

Press this key to enter alphabetic characters and/or special characters (*, /, space, etc.).

  ...   keys


For numeric input (e.g., ID numbers)

 key Function Keys (F1–F6)

- Select and start application program functions
- Select and start calibration/adjustment routines
- Navigation within App, Info, Menu and Input parameters in the Setup menu

 key

Define the decimal point position (conclude input of digits that come before the decimal point)

 / [PRINT] key Toggle Data Output

Press this key to output data to via the interface to a Sartorius "DataPrinter" or a computer.

 / [TOGGLE] key Toggle Application Programs

For toggling the display between applications in the different application groups

Specifications

Standard Models

General Specifications:

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... – 20%	
Frequency	48 – 60 Hz	
Allowable ambient operating temperature	0 ... +40 °C (273 ... 313 K, 32 °F ... 104 °F)	
Operating temperature range	+ 10 ... + 30 °C	
Dust and water protection rating according to EN 60529	IP54	
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels	
Display update (depends on the filter level selected)	0.1 – 0.4	
Power consumption	16 VA: maximum; 9 VA: average	
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h	
Selectable weight units	Grams, kilograms, carats, pounds, ounces, Troy ounces, Hong Kong taels, Singapore taels, Taiwanese taels, grains, pennyweights, milligrams, parts per pound, Chinese taels, Mommes, Austrian carats, Tola, Baht and Mesghal	
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers	
Built-in interface	RS-232C	
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits
	Parity:	odd, even or space
	Transmission rates:	150 to 19,200 baud
	Handshake:	Software or hardware

Model-Specific Specifications:

Model		FC06BBE-S	FC6CCE-H	FC2CCE-S	FC12CCE-S	FC6CCE-S
Readability	g	0.001	0.01	0.01	0.1	0.1
Weighing capacity	g	620	6,200	2,200	12,000	6,200
Max. capacity	kg	3	25	10	50	50
Tare range (by subtraction)	g	– 620	– 6,200	– 2,200	– 12,000	– 6,200
Electronically compensated preload (without restricting weighing range)	g	93	–	110	1,200	1,240
Max. preload when starting calibration/adjustment (isoTEST) (scale must be zeroed)	g	110	5,200	1,300	10,000	6,400
Reproducibility (standard deviation)	≤±g	0.001	0.01	0.01	0.05	0.05
Linearity	≤±g	0.002	0.02	0.02	0.2	0.1
Sensitivity drift within +10 ... +30 °C	≤±/K	2 • 10 ⁻⁶	2 • 10 ⁻⁶	2 • 10 ⁻⁶	4 • 10 ⁻⁶	4 • 10 ⁻⁶
Response time (average)	s	1.5	1.5	1.5	1	1
External calibration weight (of at least accuracy class...)	g	500 (E2)	5,000 (E2)	2,000 (F1)	5,000 (F1)	5,000 (F2)
Pan size	mm	Ø 130	218 x 200	218 x 200	218 x 200	218 x 200
Dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86	240x294x86	240x294x86
Net weight, approx.	kg	7	8.4	7.3	7.3	7.3
Dust and water protection rating according to EN 60529		IP54				

Model		FC16EDE-S	FC34EDE-P	FC12EDE-P	FC64EDE-S
Readability	g	0.1	0.1/0.2/0.5	0.1/0.2	1
Weighing capacity	kg	16	8/16/34	6/12	64
Max. capacity	kg	130	130	130	130
Tare range (by subtraction)	kg	- 16	- 34	- 12	- 64
Electronically compensated preload (without restricting weighing range)	kg	4	-	3	-
Max. preload when starting calibration/adjustment (isoTEST) (scale must be zeroed)	kg	18	18	15	32
Reproducibility (standard deviation)	≤±g	0.1	0.1/0.2/0.5	0.1/0.2	1
Linearity	≤±g	0.2	0.2/0.2/0.5	0.2	2
Sensitivity drift within +10 ... +30 °C	≤±/K	2 • 10 ⁻⁶	2 • 10 ⁻⁶	2 • 10 ⁻⁶	3 • 10 ⁻⁶
Response time (average)	s	1.5	1.5	1.5	1
External calibration weight (of at least accuracy class...)	kg	10 (F1)	10 (F2)	10 (F1)	10 (F2)
Pan size	mm	307 x 417			
Dimensions (W x D x H)	mm	417x368x120.5			
Net weight, approx.	kg	15.8			
Dust and water protection rating according to EN 60529		IP65			

Verified Models with EU Type Approval

General Specifications

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... -20%	
Frequency	48 – 60 Hz	
Operating temperature range	+10 ... +30 °C (+50 ... +86 °F)	
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels	
Display update (depends on the filter level selected)	0.1 – 0.4	
Power consumption	16 VA: maximum; 9 VA: average	
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h	
Selectable weight units	Grams, kilograms	
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers	
Built-in interface	RS-232C	
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits
	Parity:	odd, even or space
	Transmission rates:	150 to 19,200 baud
	Handshake:	Software or hardware

Model-Specific Specifications:

Model		FC06BBE-S0CE	FC6CCE-H0CE	FC2CCE-S0CE	FC12CCE-S0CE	FC6CCE-S0CE
Type		BA BF 500	MA BF 200	BA BF 500	BA BF 500	BA BF 500
Accuracy class *		Ⓔ	Ⓔ	Ⓔ	Ⓔ	Ⓔ
Increment d*	g	0.001	0.01	0.01	0.1	0.1
Max. weighing capacity*	g	620	6,200	2,200	12,000	6,200
Verification interval e*	g	0.01	0.1	0.1	1	1
Min. capacity*	g	0.02	0.5	0.5	5	5
Max. capacity	kg	3	25	10	50	50
Tare range (by subtraction)		≤ 100% of the max. weighing capacity				
Electronically compensated preload (without restricting weighing range)	g	93	–	110	1,200	1,240
Max. preload when starting calibration/adjustment (isoTEST) (scale must be zeroed)	g	110	5,200	1,300	8,200	2,440
Application range according to CD*	g	0.02 – 620	0.5 – 6,200	0.5 – 2,200	5 – 12,000	5 – 6,200
Response time (average)	s	1.5	1.5	1.5	1	1
Pan size	mm	Ø 130	218 x 200	218 x 200	218 x 200	218 x 200
Dimensions (W x D x H)	mm	240x294x86	240x294x86	240x294x86	240x294x86	240x294x86
Net weight. approx.	kg	7	8.4	7.3	7.3	7.3

- 1) = With the isoCAL function deactivated, the verified scale can only be used within the limited temperature range (can only be modified by the Sartorius Service Center): For scales of accuracy class Ⓔ: +15°C to +25°C
For scales of accuracy class Ⓔ: +10°C to +30°C

* CD = Council Directive 90/384/EEC for non-automatic weighing instruments used within the European Economic Area

Verified Models** with EU Type Approval

General Specifications:

AC power source/power requirements	AC adapter, 230 or 115 V, +15% ... -20%		
Frequency	48 – 60 Hz		
Operating temperature range	+10 ... +30 °C (+50 ... +86 °F)		
Adaptation to ambient conditions	By selection of 1 of 4 optimized filter levels		
Display update (depends on the filter level selected)	0.1 – 0.4		
Power consumption	16 VA: maximum; 9 VA: average		
Hours of operation with fully charged YRB 06 Z external battery pack, approx.	14 h		
Selectable application programs	Mass unit conversion, counting, weighing in percent, animal weighing, calculation, over/under checkweighing, time-controlled functions, totalizing, statistics, 2nd tare memory, identifiers		
Built-in interface	RS-232C		
	Format:	7-bit ASCII, 1 start bit, 1 or 2 stop bits	
	Parity:	odd, even or space	
	Transmission rates:	150 to 19,200 baud	
	Handshake:	Software or hardware	

Model-Specific Specifications:

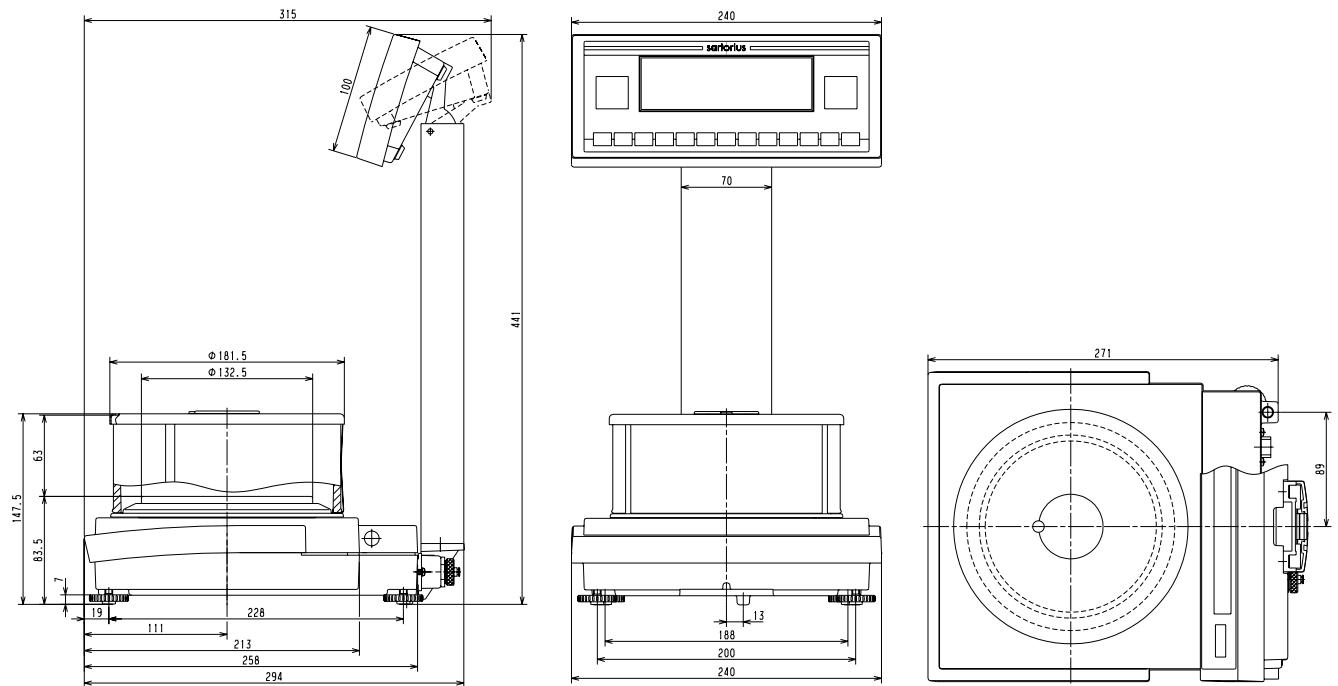
Model		FC16EDE-S0CE	FC34EDE-P0CE	FC12EDE-P0CE	FC64EDE-S0CE
Type		BB BD 523	BB BD 523	BB BD 523	BB BD 523
Accuracy class *		Ⓔ	Ⓔ	Ⓔ	Ⓔ
Increment*	g	0.1	0.1/0.2/0.5	0.1/0.2	1
Max. weighing capacity*	kg	16	8/16/34	6/12	64
Verification interval e*	g	1	1	1	10
Min. capacity*	g	5	5	5	50
Tare range (by subtraction)		≤ 100% of the max. weighing capacity			
Max. capacity	kg	130	130	130	130
Electronically compensated preload (without restricting weighing range)	kg	4	–	3	–
Max. preload when starting calibration/adjustment (isoTEST) (scale must be zeroed)	kg	15	18	10	14
Application range according to CD*	g	5 – 16,000	5 – 34,000	5 – 12,000	50 – 64,000
Response time (average)	s	1.5	1.5	1.5	1
Selectable weight units		Grams and kilograms	Grams and kilograms	Grams and kilograms	Kilograms
Pan size	mm	307 x 417			
Dimensions (W x D x H)	mm	307 x 538 x 121			
Net weight, approx.	kg	15.8			
Dust and water protection rating according to EN 60529		IP65			

* CD = Council Directive 90/384/EEC for non-automatic weighing instruments used within the European Economic Area

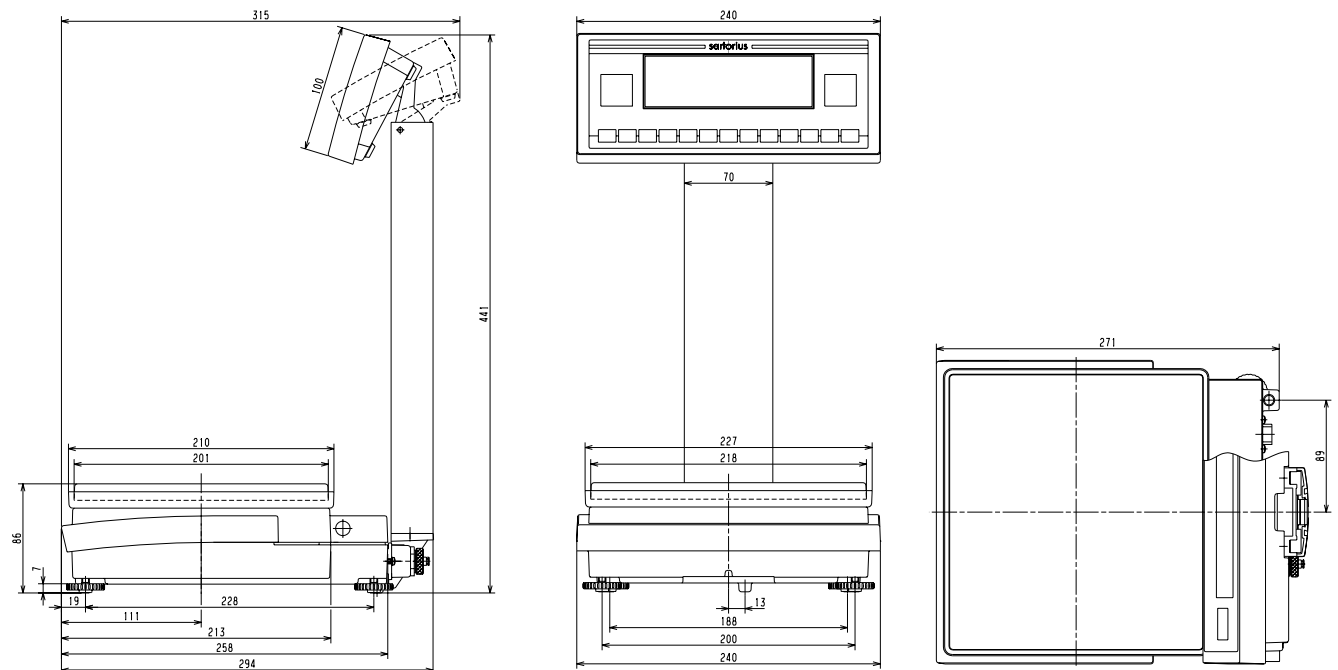
** = Models acceptable for verification must be initially verified at the place of installation

Dimensions (Scale Drawings)

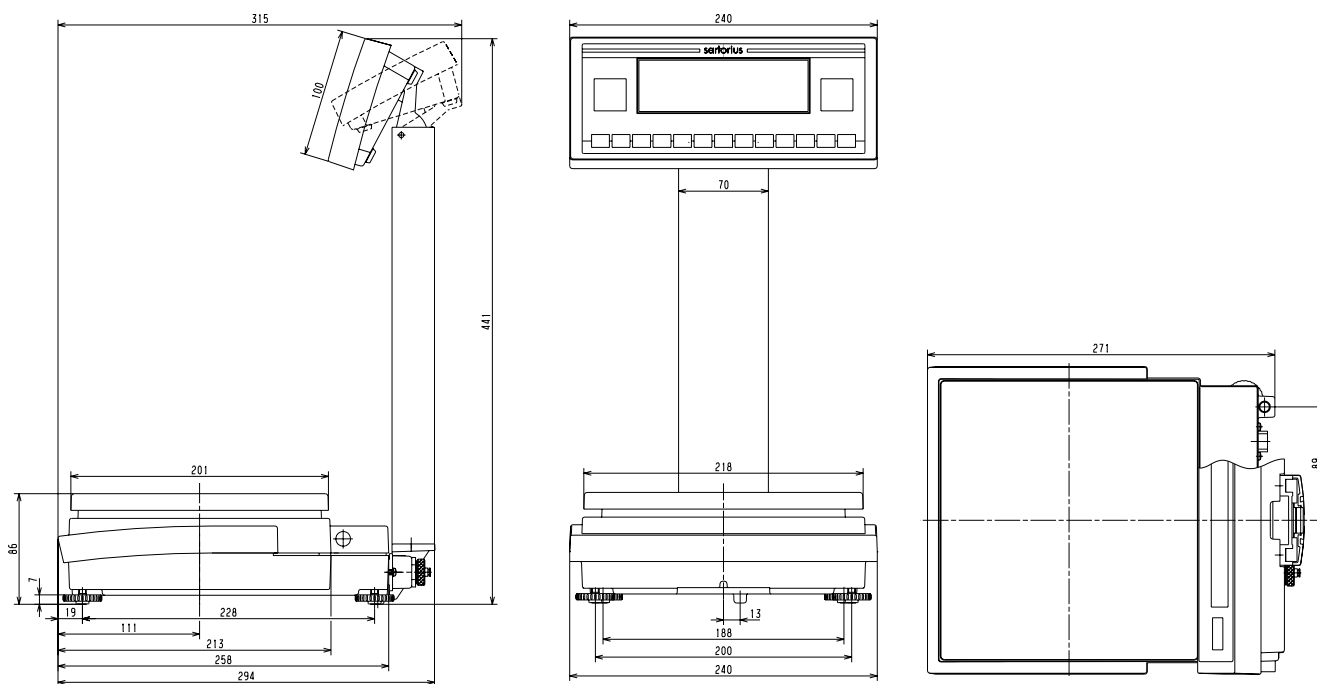
FC06BBE-S (OCE)



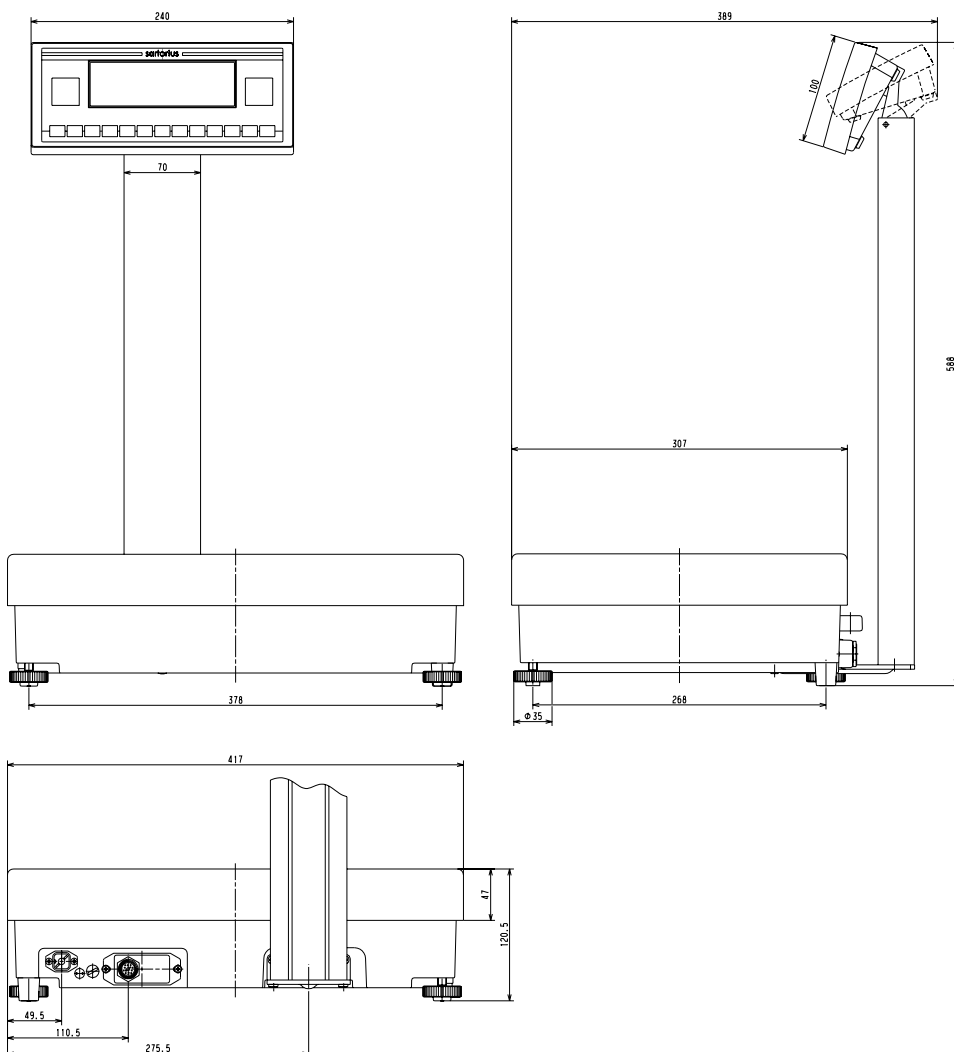
FC6CCE-H (OCE), FC2CCE-S (OCE)



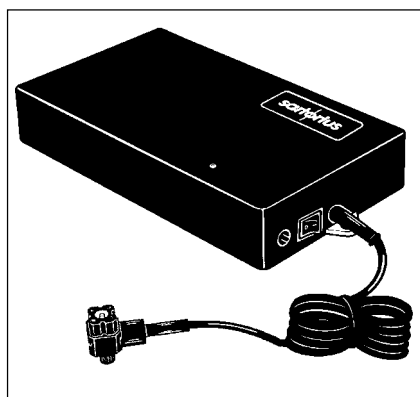
FC12CCE-S (0CE), FC6CCE-S (0CE)



FC16EDE-S (0CE), FC34EDE-P (0CE), FC12EDE-P (0CE), FC64EDE-S (0CE)



Accessories (Options)

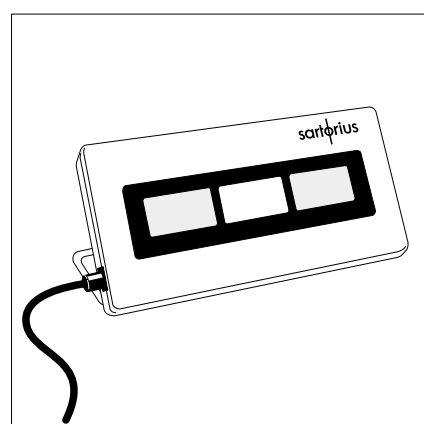
**Product****External rechargeable battery pack**

has a battery-level indicator (LED); can be recharged using the AC adapter (time it takes to charge the discharged battery pack: 1.5 hours); see "Specifications" for hours of operation

can be used in legal metrology

Order No.

YRB06Z

**3-segment checkweighing display**

Conveniently shows whether a sample (amount filled) is within the tolerance limits. For checkweighing or as a filling guide (requires YCC01-0016M3 adapter cable)

YRD11Z

Hanger for below-scale weighing

for FC ... EDE models

YSH01B

SartoWedge data transfer software

enables you to have data, recorded by your scale, input directly into any application program you are running on your PC (e.g., Excel). Memory-resident software (5 KB) for all IBM-compatible computers and scales that are equipped with a serial interface and run DOS and Windows.

This application kit includes the following software and equipment:

- 3½" program diskette
- interface cable
- adapter (25-pin to 9-pin)

YSW01

Connecting cable

for the YDP03-OCE printer

YCC01-0019M3

Adapter cable

RS-232-DB25 round connector for connecting Sartorius accessories

YCC01-0016M3

Extension data cable

Round plug/round socket (6 m)

YCC01-01ISM6

Data cable

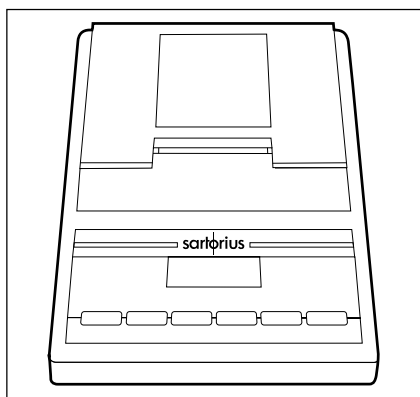
for connecting a PC

YCC01-03ISM5

Adapter cable –D-Sub 25-plug to

D-Sub 9-contact socket, length: 0.25 m

6965619



Product

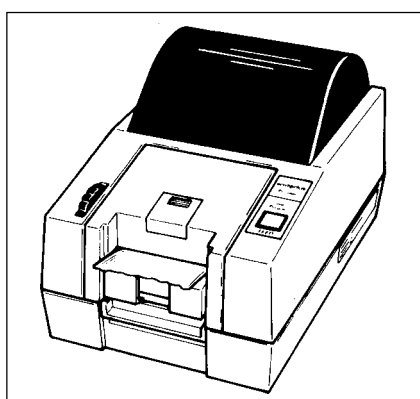
Data Printer

with date/time, statistics and transaction counter functions and LCD (requires YCC01-0016M3 adapter cable or without the cable supplied with the printer, with the YCC01-0019M3 data cable)

can be used in legal metrology

Order No.

YDP03-OCE



Data Printer

Strip and label printer with thermal head, paper width: 60 mm, includes connecting cable and external AC adapter

YDP01IS-OCE

RS-485 interface port

for FC...EDE models

for models with a weighing capacity ≤ 12 kg

YDO01F

YDO02F

Connecting cable – Weighing platform to separate display and control unit (length: 2.70 m)

for FC...EDE models

for models with a weighing capacity ≤ 12 kg

YCC01-18M3

YCC01-19M3

Wrap-around load plate

for FC6CCE-S(OCE), FC12CCE-S(OCE) models

YLP01

Calibration weights

for all FC scales, extensive assortment, optionally available with officially recognized DKD certificate

Information
on request

Declarations of Conformity

The CE Mark on Sartorius Equipment

In 1985, the Council of the European Community approved a resolution concerning a new approach to the technical harmonization and standardization of national regulations. The organization for monitoring compliance with the directives and standards concerning CE marking is governed in the individual EU Member States through the implementation of the EC Directives adopted by the respective national laws. As of December 1993, the scope of validity for all EC Directives has been extended to the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Sartorius complies with the EC Directives and European Standards in order to supply its customers with weighing instruments and related equipment that feature the latest advanced technology and provide many years of trouble-free service.

The CE mark may be affixed only to weighing instruments and associated equipment that comply with the applicable Directive(s):

Council Directive 89/336/EEC "Electromagnetic Compatibility (EMC)"

Acceptable European Standards:

Limitation of emissions:

EN 50081-1

Residential, commercial and light industry

EN 50081-2

Industrial environment

Defined immunity to interference:

EN 50082-1

Residential, commercial and light industry

EN 50082-2

Industrial environment

Important Note:

The operator shall be responsible for any modifications to Sartorius equipment and for any connections of cables or equipment not supplied by Sartorius and must check and, if necessary, correct these modifications and connections. On request, Sartorius will provide information on the minimum operating specifications (in accordance with the Standards listed above for defined immunity to interference).

Council Directive 73/23/EEC "Electrical Equipment Designed for Use within Certain Voltage Limits"

Applicable European Standards:

EN 60950

Safety of information technology equipment including electrical business equipment

EN 61010

Safety requirements for electrical equipment for measurement, control and laboratory use

Part 1: General requirements

If you use electrical equipment in installations and under ambient conditions requiring higher safety standards, you must comply with the provisions as specified in the applicable regulations for installation in your country.

Weighing Instruments for Use in Legal Metrology: Directive 90/384/EEC "Non-automatic Weighing Instruments"

This Directive regulates the determination of mass in legal metrology.

For the respective Declaration of Conformity for weighing instruments that have been verified by Sartorius for use as legal measuring instruments and that have an EC Type-Approval Certificate, see page 127.

This Directive also regulates the performance of the EC verification by the manufacturer, provided that an EC Type-Approval Certificate has been issued and the manufacturer has been accredited by an officer or a Notified Body registered at the Commission of the European Community for performing such verification.

The legal basis allowing Sartorius to perform EC verification is constituted by the EC Council Directive No. 90/384/EEC on non-automatic weighing instruments that has been in effect since January 1, 1993, in the Internal Market as well as by the Certificate of Accreditation of the Sartorius AG Quality Management System issued by the Metrology Department of the Regional Administration Office of Lower Saxony, Germany ("Niedersächsisches Landesverwaltungsamt -Eichwesen") on February 15, 1993.

For information on the CE mark on Sartorius equipment and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please ask your local Sartorius office, dealer or service center.

“New Installation” Service

Initial verification is covered in our “New Installation” service package. In addition to initial verification, this package provides you with a series of important services which will guarantee you optimal results in working with your weighing instrument:

- Installation
- Startup
- Inspection
- Training
- Initial verification

If you would like Sartorius to perform initial verification of your weighing instrument, contact an authorized service representative.

“EC Verification” – A Service offered by Sartorius

Our service technicians are authorized to perform the verification* of your weighing instruments that are acceptable for legal metrological verification and can inspect and verify the metrological specifications at the place of installation within the Member States of the European Union and the Signatories of the Agreement on the European Economic Area.

Subsequent Verifications within the European Countries

The validity of the verification will become void in accordance with the national regulations of the country in which the weighing instrument is used. For information on verification and legal regulations currently applicable in your country, and to obtain the names of the persons to contact, please contact your local Sartorius office, dealer or service center.

* in accordance with the accreditation certificate issued to Sartorius AG

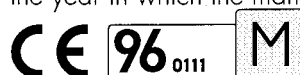
DECLARATION OF TYPE CONFORMITY to Directive No. 90/384/EEC

This declaration is valid for non-automatic electromechanical weighing instruments for use in legal metrology. These weighing instruments accepted for legal metrological verification have an EC Type-Approval Certificate. The model(s) concerned is(are) listed below along with the respective type, accuracy class, and number of the EC Type-Approval Certificate:

Model	Type	Accuracy Class	EC Type-Approval Certificate No.
FB/FC.....-OCE	MD BF 100	Ⓘ	D96-09-030
FB/FC.....-OCE	MA BF 200	Ⓜ	D96-09-030
FB/FC.....-OCE	BA BF 500	Ⓜ or Ⓢ	D96-09-030
FB/FC.....-OCE	BB BD 523	Ⓜ or Ⓢ	D95-09-006
IS.....-OCE*	MD BF 100	Ⓘ	D96-09-030
IS.....-OCE*	MA BF 200	Ⓜ	D96-09-030
IS.....-OCE*	BA BF 500	Ⓜ or Ⓢ	D96-09-030
IS.....-OCE*	BB BD 523	Ⓜ or Ⓢ	D95-09-006

* when connected to indicator model ISI 10, ISI 20, ISI 30, YAC01LA or YAC01LP

SARTORIUS AG declares, at its sole responsibility, that its weighing instrument types comply with the regulations of the Council Directive for Non-Automatic Weighing Instruments, No. 90/384/EEC of 20 June 1990; the associated European Standard "Metrological aspects of non-automatic weighing instruments," No. EN 45501; the amended, currently valid versions of the national laws and decrees concerning legal metrology and verification in the Member States of the European Union, the EU, and the Signatories of the Agreement on the European Economic Area, which have adopted this Council Directive into their national laws; and with the requirements stipulated on the Type-Approval Certificate for verification. This Declaration of Type Conformity is valid only if the ID label on the weighing instrument has the CE mark of conformity and the green metrology sticker with the stamped letter "M" (the two-digit number in large print stands for the year in which the mark has been affixed):



If these marks are not on the ID label, this Declaration of Type Conformity is not valid. Validity can be obtained, for example, by submitting the weighing instrument for final action to be taken by an authorized representative of SARTORIUS AG.


The period of validity of this Declaration of Type Conformity shall expire upon any tampering with, repair or modification of this weighing instrument or, in some Member States, on the date of expiration.

The operator of this weighing instrument shall be responsible for obtaining an authorized renewal of the verification, such as subsequent or periodic verification, of the weighing instrument for use as a legal measuring instrument.

Signed in Goettingen on this day of 25 September 1996


Board of Management
(Dr. Laleike)

SARTORIUS AG
37070 Goettingen
Germany


Board of Management
(Dr. Schmeißer)

OAW-113-2/02.96
P103EN00

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

**EG-Bauartzulassung
Zulassungsschein**



**EC Type approval
certificate**

Nr. D96-09-030

ausgestellt von <i>issued by</i>	Physikalisch-Technische Bundesanstalt Bundesallee 100 D - 38116 Braunschweig Bundesrepublik Deutschland
benannte Stelle <i>notified body</i>	0102
gemäß <i>in accordance with</i>	§ 13 des Eichgesetzes (verification act) vom 23. März 1992 (BGBl. I S.711) und § 7c (2) Eichordnung (verification ordinance) in der Fassung vom (version of) 21. Juni 1994 (BGBl. I S. 1293), entsprechend der Richtlinie (implementing council directive) 90/384/EWG, geändert durch (amended by) 93/68/EWG
ausgestellt für <i>issued to</i>	Sartorius AG Weender Landstraße 94-108 D - 37075 Göttingen Bundesrepublik Deutschland
für <i>in respect of</i>	Nichtselbsttätige elektromechanische Waage Nonautomatic electromechanical weighing instrument
Typen <i>types</i>	MD BF 100, MA BF 200 und BA BF 500 Genauigkeitsklasse/class (I) ; (II) oder (III) Max 50 g ... 12100 g Option: Mehrteilungswaage, Mehrbereichswaage e = 10 mg ... 5 g multi-interval and multiple range instrument
gültig bis <i>valid until</i>	09.09.2006

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen sind in der Anlage enthalten, die Bestandteil der Zulassung ist und 7 Seiten umfaßt.

The principal characteristics, approval conditions and special conditions if any are set out in the Appendix hereto, which forms part of the approval document and comprises 7 pages.

Braunschweig, 10.09.1996
Geschäftszeichen: 1.13-96.204
Reference No:



Im Auftrag
By order

Brandes

Siegel
Seal

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Further information and legal remedy instruction see over-leaf. Type approval certificates are valid only with signature and seal. This type approval certificate shall be reproduced only in full. Partial reproduction or modification only upon permission of the Physikalisch-Technische Bundesanstalt.

Physikalisch-Technische Bundesanstalt

Braunschweig und Berlin

**EG-Bauartzulassung
Zulassungsschein
4. Nachtrag**



**EC Type approval
certificate
Addition 4**

Nr. D95-09-006

ausgestellt von <i>issued by</i>	Physikalisch-Technische Bundesanstalt Bundesallee 100 D - 38116 Braunschweig Bundesrepublik Deutschland	
benannte Stelle <i>notified body</i>	0102	
gemäß <i>in accordance with</i>	§ 13 des Eichgesetzes (verification act) vom 23. März 1992 (BGBl. I S.711) und § 7c (2) Eichordnung (verification ordinance) in der Fassung vom (version of) 21. Juni 1994 (BGBl. I S. 1293), entsprechend der Richtlinie (implementing council directive) 90/384/EWG, geändert durch (amended by) 93/68/EWG	
ausgestellt für <i>issued to</i>	Sartorius AG Weender Landstraße 94-108 37075 Göttingen Bundesrepublik Deutschland	
für <i>in respect of</i>	Nichtselbsttätige elektromechanische Waage <i>Non-automatic electromechanical weighing instrument</i>	
Typ <i>type</i>	BB BD 523, HA BD 523, HB BD 523, DK BD 323, DL BD 323 Max 0,5 kg ... 620 kg e = 1 g ... 1 kg (II) n ≤ 34000 Option: Mehrteilungs-/ Mehrbereichswaage (III) n ≤ 8100 multi-interval/multiple range scale	
gültig bis <i>valid until</i>	09.03.2005	

Die Hauptmerkmale, Zulassungsbedingungen und Auflagen werden entsprechend der Anlage geändert, die Bestandteil dieses Nachtrags ist und 3 Seiten umfaßt.

The principal characteristics, approval conditions and special conditions are changed according to the Appendix hereto, which forms part of this Addition and comprises 3 pages.

Braunschweig, 20.09.1996
Geschäftszeichen: 1.13-96.191
Reference No:

Im Auftrag
By order

Schwarz
Dr. Schwartz



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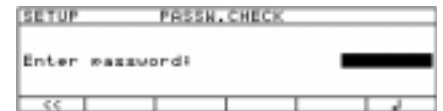
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Appendix

Entering the User Password

Enter/Change Password

- Select the Setup menu: Press **SETUP**
- > **SETUP SELECTION**
is displayed
- Select the user input function:
Press the **Input** soft key
- > The password prompt
is displayed:



- Enter the User Password
(see below)
- Confirm password:
Press the **↓** soft key
- > User data is displayed
- Select the password setting
function: Press the **↵** soft key
repeatedly until
- > **Enter password:**
is displayed, together with the
current password setting
- Define a new password:
Enter letters/numbers for the new
password (8 characters max.)

To delete the current password:
press **[.]** and confirm
- To confirm the new password:
press the **↓** soft key
- Exit the Setup menu:
Press **SETUP**
- > Restart your application

User Password: 40414243

Sartorius AG

✉ 37070 Goettingen, Germany

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☎ (551) 3 08-0, 📠 (551) 3 08-32 89

Internet: <http://www.sartorius.com>

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The status of the information, specifications and illustrations in this manual is indicated by the date given below. Sartorius AG reserves the right to make changes to the technology, features, specifications, and design of the equipment without notice.

Status: May 1997, Sartorius AG, Goettingen, Germany

Printed in Germany on paper that has been bleached without any use of chlorine · W397-A00.Factory FC e (PM5) · KT
Publication No.: WFC6001-e97051

The Sartorius logo consists of the word "sartorius" in a bold, lowercase, sans-serif font. A vertical line passes through the center of the letter 'o', which is highlighted with a yellow circle.